

FEB.14.2003 9:11AM TURBOCARE SANO.495 TUP.2/2RE

### Estimated Percent Full Load Throttle For Closure

Customer : INTERMOUNTAIN POWER

ORDER#: 15066

*AutoRing Report*

Station : DELTA

2/13/2003

Unit #: 2

4:49:37 PM

<u>Location</u>	<u>Est. % FLT Closure</u>	<u>Low Tooth Height</u>	<u>High Tooth Height</u>
STA 9TE	32.37	1.235	1.360
STA 9GE	42.97	1.235	1.360
STA 10TE	41.19	1.235	1.360
STA 10GE	58.60	1.235	1.360
STA 11TE	49.03	1.235	1.360
STA 11GE	23.23	1.235	1.360
STA 12TE	51.01	1.235	1.360
STA 12GE	65.75	1.235	1.360
STA 13TE	29.13	1.235	1.360
STA 13GE	33.90	1.235	1.360
STA 14TE	39.83	1.235	1.360
STA 14GE	41.15	1.235	1.360
N1 G4	39.30	1.235	1.360
N1 G5	17.20	1.235	1.360
N1 G6	9.30	1.235	1.360
N1 G7	2.50	1.235	1.360
N2 G6	2.50	1.235	1.360
N2 G7	24.00	1.235	1.360

IP7\_005217

### **1. Project Management**

- Capital Project Form
- Capital Project Justification Sheet
- Project Organization Chart
- Work Order Copy

## 2002 U2 Outage

### Contract Administrator Checklist

This checklist is intended as a guide to help IPSC Contract Administrators fulfill their duties in regard to their contracts. This checklist is not intended to be all inclusive. It is a guide only and other duties may also be required. When referring to "contractor" below, it is referring to the primary contractor, all subcontractors, and all employees associated with the contractor or subcontractors working under the contract.

Contract Administrator duties include the following items.

- ☐ Become familiar with the contract and keep a copy handy.
- ☐ Make sure that the TIMS "Contract Tracking" program is updated and accurate.
  - ☐ Contractors and all subcontractors must be cleared for work on the contractor tracking program prior to mobilization.
- ☐ Establish your contractor representatives shortly after award of the contract and communicate with them.
  - ☐ Discuss their plans for fulfilling the contract.
  - ☐ Discuss the scope of work so there are no misunderstandings.
  - ☐ Discuss overlapping work, coordination issues and possible conflicting work or activities.
  - ☐ Find out if they are using subcontractors.
  - ☐ Remind them of the insurance requirements for them and their subcontractors.
  - ☐ Discuss a good time for them to visit the plant site prior to mobilization.
  - ☐ Let them know that you are their primary plant contact.
  - ☐ Let them know that you will be overseeing their work and their associated costs.
- ☐ Keep the Area Coordinator(s) informed of the contract status and the contractor status.
- ☐ When the contractor visits the site (prior to mobilization), discuss:
  - ☐ IPSC expectations for professional and quality work, including QA/QC requirements.
  - ☐ IPSC work rules that are applicable to the contractor and the job.
  - ☐ Manpower.
  - ☐ Schedule.
  - ☐ Tooling.
  - ☐ Their Safety Requirements (Respirator, Confined Space, Dangers in the Work Areas, Etc).
  - ☐ Their Training Requirements.
  - ☐ Does the Contractor Have Any IPSC Safety or Training Requests. Remember, the contractor is responsible for their own safety and training.
  - ☐ Tagging Procedures.
  - ☐ Emergency Procedures.
  - ☐ Hazardous Materials and Wastes Management.
  - ☐ First Aid.
  - ☐ Fall Protection.
  - ☐ Drug Policy.
  - ☐ Plant Cleanliness.

- ☐ Temporary Power Needs.
- ☐ Lighting Requirements.
- ☐ Extension Cords.
- ☐ Ladders.
- ☐ PPE.
- ☐ Work Areas.
- ☐ Laydown & Storage Areas.
- ☐ Break Areas.
- ☐ Parking.
- ☐ Evacuation Plans.
- ☐ Mobilization Plans.
- ☐ Warehouse receiving requirements for materials shipped to our warehouse, including DOT, clear marking, contractor name, contact person name, etc.
- ☐ Notice is required to you before contractor manpower changes are made or overtime is used (price & time).
- ☐ Time sheets are to be submitted to you each day for your signature (price & time).
- ☐ Notice and approval are required by you of additional material and equipment costs before the contractor proceeds with the costs (price & time, or contract addendums).
- ☐ Plant tools, equipment and materials are not available to the contractor unless specified in the contract.
- ☐ Introduce the contractor to the Area Coordinator(s) and others that they might work with.
- ☐ Before mobilization, make sure that the contractor has:
  - ☐ The required insurance (refer to the TIMS contractor tracking program).
  - ☐ A good written safety program.
  - ☐ Employees trained as needed.
  - ☐ An adequate drug policy and has tested the employees.
- ☐ Notify Operations and Safety of the planned contractor mobilization date and schedule.
  - ☐ Inform them of any security and/or training requirements.
- ☐ Be here when the contractor mobilizes.
  - ☐ Make sure that the contractor's employees and subcontractor's employees receive initial plant safety training/orientation.
  - ☐ Get names of employees and subcontractors.
  - ☐ Inspect their tools and equipment to make sure they have what you discussed at the site visit and that they are adequate.
  - ☐ Remind them of the requirements discussed with them on the site visit and make sure they are serious about following these requirements.
  - ☐ Make sure that they set up in the right areas (facilities, offices, laydown areas, break & lunch areas, parking areas, site access, work areas, etc).
  - ☐ Make sure the contractor has evidence of safety training and drug testing for all employees.
  - ☐ Make sure that the contractor understands that you are his primary contact. They should not take direction from any other employees without your notification to the contractor.
  - ☐ Make sure that the contractor understands that you want to be kept informed and approve of additional costs and manpower.
  - ☐ Make sure that the contractor understands that his employees must be aware of specific safety

- issues associated with the work and the work area before work begins each day.
- ☐ Conduct a work area walk down identifying any concerns that may exist with adjacent work, operational systems, emergency systems (eyewashes, phones, etc), and the specific work area.
- ☐ Coordinate anticipated material and receiving requirements with the warehouse supervisor.
- ☐ Make sure that the contractor understands that you want to be kept informed of the work progress.
- ☐ Answer any contractor questions.
- ☐ Meet with the contractor representative on site daily.
  - ☐ Discuss work quality and progress.
  - ☐ Discuss safety and training issues.
  - ☐ Discuss hazardous materials and handling.
  - ☐ Discuss changes in scope, if any.
  - ☐ Discuss any other pertinent issues.
- ☐ Stay up with the contractor's work. Make sure work is progressing and that they are following theirs, and IPSC's rules.
  - ☐ Walk down their work areas frequently (at least daily).
  - ☐ Do quality control checks.
  - ☐ Make sure they are working safely.
  - ☐ Make sure the work areas are being kept clean by the contractor.
  - ☐ Know how many workers are on the job and their work schedule.
- ☐ Sign time sheets daily (price & time).
- ☐ Approve overtime before they are allowed to work it (price & time or addendums).
- ☐ Initial contractor purchase orders before the contractor is allowed to purchase and invoice IPSC for the costs (price & time or addendums).
- ☐ Update your Area Coordinator(s) daily.
- ☐ Make sure that the contractor's work is completely done (including any paperwork) and their areas are clean before they demobilize.
  - ☐ Make sure some money is withheld until all reports, contract documents, etc, are received by IPSC.
  - ☐ Make sure all QA/QC inspections and requirements are done properly, by the right people before they demobilize.
  - ☐ Make sure that any warranty issues are resolved.
  - ☐ Make sure IPSC tools and materials are returned properly.
  - ☐ Make sure hazardous materials are dealt with properly.
- ☐ Be there when the contractor demobilizes.
  - ☐ Get the necessary property removal passes signed.
  - ☐ Check their tools and equipment.
  - ☐ Be sure their areas are cleaned up.

- ☐ Be sure they make it off site with all of their stuff, and none of our stuff.
- ☐ Review progress of the contract after demobilization.
  - ☐ Evaluate the contractor's work after startup and operation.
  - ☐ Review the contractor's work with the Area Coordinator, Safety, Warehouse and other sections to find out their incites.
  - ☐ Work with accounting on the accuracy of the billings.
  - ☐ Resolve any discrepancies in billings.
- ☐ Follow the contract until it is closed.
  - ☐ Billings.
  - ☐ Reports.
  - ☐ Drawing and contract documents changes.
  - ☐ Addendums
  - ☐ Warranties, etc.

12. Capital Packages (not including extremely small packages) should include at least the following:

Design Pkg.

1. Capital Project Form
2. Justification (Budget) Sheet
3. Design section including scope
4. Document Transmittal Form and Dwgs
5. Quality Verification Plan

Construction Pkg.\*

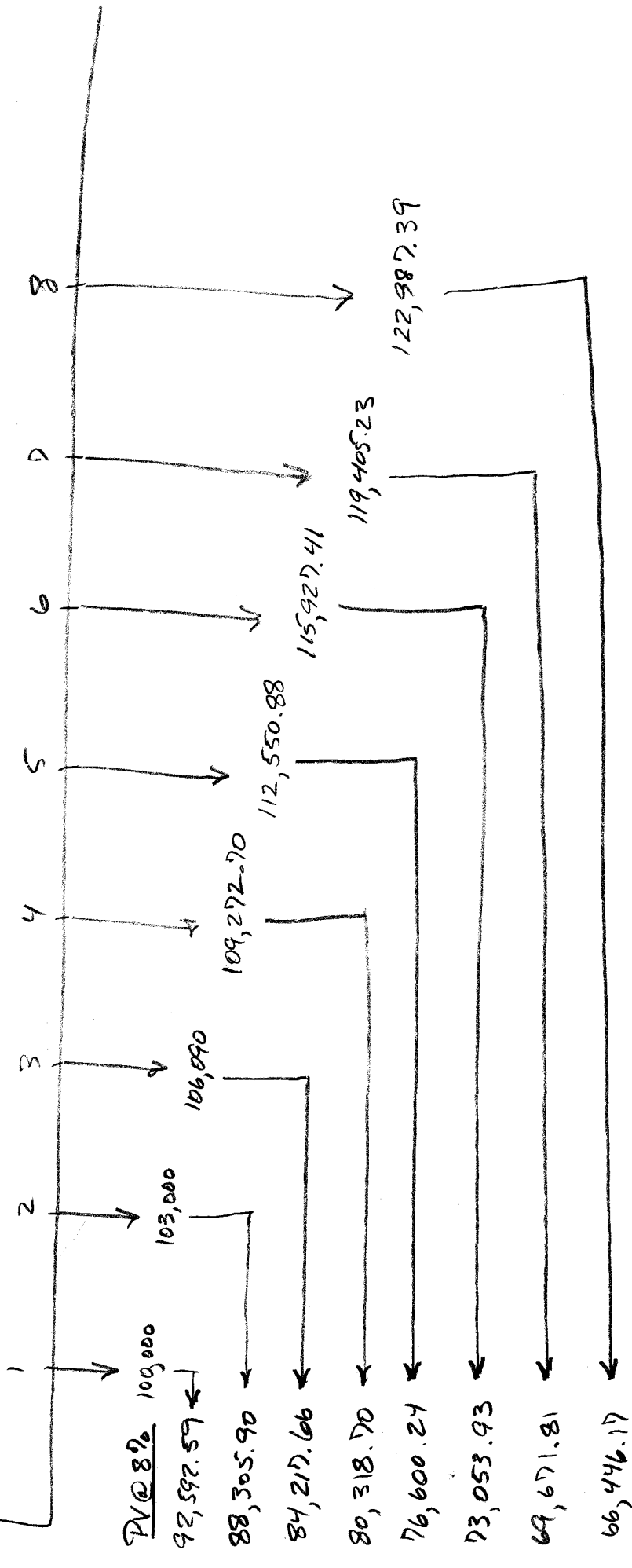
1. Transmittal Memo
2. Capital Project Form
3. Justification Sheet
4. Detailed Scope
5. JSS *Time Line*
6. BOMs, Reqs, Specs, Contracts, etc
7. DTF and Dwgs
8. Quality Verification Plan
9. Startup Plan

Closeout Pkg.

1. Capital Project Form
2. Justification Sheet
3. Work Order
4. DTF and Drawings
5. Quality Verification

\*Significant safety items or unusual project organizational structure/contacts should be noted in cover memo

Cash flow (562,688)  
3% escalation.



631,207.00


The PV of the future savings (631,207.00) must be > the initial "cash flow".  
(Specifically, savings should be > (initial "cash flow" + Internal Rate of Return))

# MEMORANDUM

## INTERMOUNTAIN POWER SERVICE CORPORATION

TO: S. Gale Chapman

Page 1 of 1

FROM: Dennis K. Killian 

DATE: November 6, 2001

SUBJECT: IGS 01-17 Variable Clearance Packing for IP Turbine  
Sections

Please review and approve the attached design package for Capital Project IGS 01-17. This project concerns the installation of variable clearance packing and reduced clearance spill strips in the intermediate pressure turbine sections of both Unit 1 and Unit 2.

The Purchase Requisition and Contract Detailed Specifications for this project are also attached with this package for your review and approval.

This project is an identified Capital Project for the 2001-2002 and 2002-2003 budget years.

If you have any questions or need more information, please contact David Spence at ext. 6449 or Aaron Nissen at ext. 6482.

DCS/JKH:jmg

Attachments

IP7\_005225

CAPITAL PROJECT IGS01-17

Date October 30, 2001

**IP7 005226**

CAPITAL PROJECT JUSTIFICATION 2001-2002

JOB.NO:

IGS01-17

W.O. #00-07718-00

TITLE:

IP Turbine Retractable Packings

DESCRIPTION:

Install retractable packing on the IP turbines of both units

JUSTIFICATION:

ECONOMIC

PAYBACK PERIOD:

1.2 years

BENEFIT/COST RATIO:

3.9

ECONOMIC LIFE:

8 years

PV SAVINGS:

\$1,354,000

SALVAGE VALUE:

\$0

ADDITIONAL DETAIL:

This project covers installation of new retractable interstage packings with brush seals and reduced clearance spill strips in the IP turbines of both units during the Spring 2002 and 2003 major overhauls. Economic analysis in this document is only for the 2002, Unit 2 installation.

Annual savings are based upon improved IP turbine efficiency and unit heat rate from reduced diaphragm interstage steam leakages. Retractable interstage packings also eliminate rotor bows during startups which allow tighter radial spill strip clearances further reducing steam path leakages. Based upon opening clearances measured during previous overhauls and the expected retractable packing clearance reductions, a heat rate improvement of 23 Btu/kwh or \$227,000 annual fuel cost savings is expected.

The 8 year economic life is the current interval between IP turbine overhauls. The retractable packing will continue to be used after this period but will require refurbishment at the next IP overhaul. There will be no annual operating and maintenance costs associated with this project.

The proposed retractable packings for this project are 2<sup>nd</sup> generation and have been proven reliable in over 10 years of operation at several hundred facilities.

Capital cost of design and installation: \$344,000

No annual operating and maintenance cost.

PV of total project cost over life of the project: \$344,000

## CAPITAL PROJECT JUSTIFICATION 2001-2002

Deferred cost of conventional packing replacement in 2002: \$48,000

PV of annual savings over life of project: \$1,306,000

PV total savings over life of project: \$1,354,000

Payback period = capital cost of project / annual savings = \$344,000 / \$275,000 = 1.2 years

Benefit/Cost ratio = PV project savings / PV project cost = \$1,354,000 / \$344,000 = 3.9

### COST ESTIMATE:

	<u>2001-2002</u>	<u>2002-2003</u>
Engineering Labor	\$2,000	2,000
Installation Labor	\$2,000	2,000
Contractor Labor	\$25,000	25,000
Material	<u>\$ 315,000</u>	<u>315,000</u>
Job Total	\$344,000	344,000

### ALTERNATIVES:

1. Replace IP turbine packing with conventional packings and rub out to current operating clearances within 2 or 3 unit startups. Lose the potential savings from retractable packings.
2. Do not replace packings. Operate with the current packing clearances for the next overhaul cycle. Lose the potential savings from retractable packings.

### EFFECT OF DEFERRAL:

At least 8 years until the next opportunity to install retractable packings on the current overhaul schedule.

### PROJECT HISTORY:

None

\*\*\* CREW 81

\*\*\*

MODIFICATIONS WORK ORDER

\*\*\*

00-7718-0 \*\*\*

Page 1 Of 1

Originator: AARON NISSEN	Schedule Date :
( Planner : KELLY CLOWARD	Shutdown Code : N No Shutdown
Ref No :	Parts Required: NO
Drawing No: 2TGA-M2079	Issue Date : 04/25/00
( Project ID:	Priority Code : 3A

Action Code : 0 MODIFICATIONS  
Matl Acct# : 002TGX-401  
Labor Acct# : 002TGX-101  
Clearance : N  
Standard Hrs: N

Brief Desc: CAPITAL PROJECT: PURCHASE/INSTALL RETRACTABLE  
PACKING FOR IP TURBINE SECTIONS, UNITS 1 AND 2.

BLDG COL-ROW ELEV

Equipment: 2TGA--2 2 TURBINE, INTERMED PRESS.  
IP SECTION.  
COMBINED REHEAT INTERCEPT AND STOP VALVES 1A3 &  
1B3.

** Planning Text Page **					** Record Time		Daily	**		** Delay Codes **			
Step	Description	Hours	Men	Day	Emp No	Date	Hours	Ent	Wbs	Crsp	Tag	Tool	Plan
1	CAPITAL PROJECT: PURCHASE/INSTALL RETRACTABLE PACKING FOR IP TURBINE SECTIONS, UNITS 1 AND 2.	10.00	1	1 [ ]				[ ]					
	DURING SPRING 2002 UNIT 2 OUTAGE, SPRING 2003							[ ]					
	FOR UNIT 1 OUTAGE							[ ]					
	UNIT 2 IP TURBINE PACKING TO BE INSTALLED IN SPRING 2002 OUTAGE.							[ ]					
	UNIT 1 IP TURBINE PACKING TO BE INSTALLED IN SPRING 2003 OUTAGE.							[ ]					
	ROUTE TO DAVE SPENCE FOR BUDGET JUSTIFICATION.							[ ]					

COMMENTS: INDICATE ANY ADDITIONAL REMARKS ON REVERSE SIDE

REASON CODE: FAILURE CODE: EQUIP DOWNTIME HRS: DATE COMPLETED:

COMPLETED BY EMP NO: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ ACCEPTED BY EMP NO: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

**IP7\_005229**

**IP7 005230**

Recommended Bidders List for IGS01-17 IP Turbine Variable Clearance Packings

Turbine Service and Supply Inc.

Attn: Frank Rzepecki, President  
810 NW 25<sup>th</sup> Ave.  
Suite 108  
Ocala, FL 34475-5772  
Tel. (352) 629-6909  
Fax (352) 629-7425

TurboCare

Attn: Robert Hogan, Project Manager  
Chicopee Operations  
2140 Westover Road  
Chicopee, MA 01022  
Tel. (413) 593-0500 Ext. 344  
Fax (413) 593-3424

General Electric Company

Attn: Jeremiah Smedra  
P.O. Box 526440  
Salt Lake City, UT 84152-6440  
Tel. (801) 468-5713

**PART E - DIVISION E2****ADDITIONAL GENERAL CONDITIONS**

1. **Performance:** Work completed during the outage on the Intermediate pressure turbine section shall be guaranteed to produce an improvement in section efficiency equal to the predicted section efficiency improvement. The predicted section efficiency improvement shall be determined from the opening clearance measurements and the expected closing clearances resulting from the new packing and spill strips. The predicted section efficiency improvement shall be agreed upon by the Contractor and IPSC, before the installation of the new packing and spill strips.

IPSC will conduct a preoutage performance test to determine the section efficiency of the intermediate pressure turbine section. After the intermediate pressure section is disassembled, an opening steam path audit will be conducted by IPSC to determine the efficiency loss attributable to increased packing and spill strip clearances. Steam path repairs in addition to the packing and spill strip replacement shall be determined by IPSC following evaluation of the opening steam path audit.

Prior to closing the intermediate pressure turbine section, a closing steam path audit shall be conducted by IPSC to determine the expected recovered losses attributable to outage repairs. This information will be used to check the final packing and spill strip clearances and to determine the portion of the total expected recovered losses attributable to the packing and spill strip replacement.

2. **Performance Tests:** IPSC shall conduct pre and post-outage performance tests to determine compliance with the performance guarantee. Enthalpy drop efficiency tests will be conducted to determine IP turbine section efficiencies. Test data will be measured using plant instrumentation calibrated by IPSC, or by calculated values agreed upon by the Contractor and IPSC where measurements are impractical or suspect. Tests will be conducted at turbine throttle valves-wide-open and steady load.

The general methods outlined in the ASME test codes will be used as a guide for test procedures; however, code technicalities shall not void the validity of these tests. The Contractor shall have the right to witness the tests.

In addition to the above test procedures, IPSC may utilize a third party contractor to conduct ASME Performance Test Code type tests (ASME PTC-6S) for the pre and post-outage testing. IPSC further reserves the right to use a third party contractor to conduct the opening and closing steam path audits. The results of the pre and post-outage performance tests and steam path audits shall then be binding on the parties of this Contract.

All reasonable effort will be made to conduct the pre-outage performance tests within four (4) weeks before the start of the outage and the post-outage test within four (4)

## DIVISION E2

ADDITIONAL GENERAL CONDITIONS

---

weeks of the initial startup following the outage.

3. Guarantee: The Contractor shall guarantee that the intermediate pressure turbine section meet the performance conditions as set forth in these specifications.

If the field performance tests indicate that such performance conditions are not met, then IPSC shall be entitled to damages, excluding consequential damages, for such deficient performance. The damages for failing to meet the performance conditions as set forth in these specifications shall be 10 percent of the contract amount. It is agreed between the Contractor and IPSC that it would be impossible or extremely difficult to determine actual damages for failing to meet the guaranteed performance and that the above agreed amounts are reasonable liquidated damages and do not constitute a penalty.

The Contractor shall repair or replace, F.O.B. contract delivery point, all defective materials and workmanship.

4. Payment: Payment will be made within thirty (30) calendar days after completion of outage and performance tests, and receipt of the invoice.
5. Regulations, Permits, Licenses, and Warrants: The Contractor shall comply with all applicable federal, state, and local regulations pertaining to safety including, but not limited to, Federal and State OSHA, as said regulations relate to this Contract. In addition, the Contractor shall assure that all permits, licenses, and warrants relating to the Contract be acquired.

**PART F - DIVISION F1****DETAILED SPECIFICATION - SPECIAL CONDITIONS**

1. General: Under the terms of the Contract, the Contractor shall furnish, deliver, and install Diaphragm Packing, End Packing and Spill Strips ordered by IPSC.
2. Schedule: Coordination and scheduling of work will be essential for efficient use of equipment and manpower due to the tight overhaul schedule.

The projected work schedule will be released to the Contractor within two (2) weeks of the award of the Contract so that IPSC's and the Contractor's work can be coordinated. IPSC may change the schedule to meet outage requirements.

The Contractor shall schedule delivery of equipment and materials in accordance with the following listed dates:

- a. Unit 2: The outage will commence on March 2, 2002, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 4, 2002. Outage work shall be completed and the unit on turning gear no later than March 29, 2002. The unit will be released for normal operation on April 1, 2002.
  - b. Unit 1: The outage will commence on March 1, 2003, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 3, 2003. Outage work shall be completed and the unit on turning gear no later than March 28, 2003. The unit will be released for normal operation on March 31, 2003.
3. Printed Documents: All printed documents including drawings and instruction books, if applicable, shall be in the English language. All units of measurement shall be in the English foot-pound-second system.
  4. Indemnity Clause: The Contractor undertakes and agrees to indemnify, hold harmless, and at the option of the Intermountain Power Agency, defend Intermountain Power Service Corporation, Los Angeles Department of Water and Power, and any and all of their boards, officers, agents, representatives, employees, assigns and successors in interest from and

**PART F - DETAILED SPECIFICATION****DIVISION F2 - GENERAL DESIGN AND PACKING REQUIREMENTS**

1. General: This section contains the detailed description and supplementary requirements for materials and services included under these specifications.
2. Scope: The work under these specifications shall include supply of variable clearance packing and reduced clearance spill strips for the intermediate pressure turbine sections and upgrade of currently installed retractable packings on the N1 and N2 high pressure end packings of the Intermountain Generating Station and miscellaneous materials and services required for proper installation and operation.

The materials to be furnished shall include the following:

- a. Unit 2: Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).  
  
Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).  
  
Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).  
  
Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).  
  
Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).  
  
Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).
- b. Unit 1: Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).  
  
Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).  
  
Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).  
  
Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).

## DIVISION F2

GENERAL DESIGN AND PACKING REQUIREMENTS

---

Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).

Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).

- c. Removal of Restrictions: Packing ring restrictions or teeth shall not be removed from any segment without IPSC review and approval.
  - d. Design Conditions: The turbine is a GE S2 design with a name plate rating of 820 MWG and a tested capability at design throttle conditions at 875 MWG. It is a single reheat, tandem-compound, 3600 rpm, condensing extraction type turbine. Design reheat turbine inlet steam conditions are 550 psig and 1000°F.
3. IPSC Responsibilities: IPSC will be responsible for the disassembly, inspection, and reassembly of the high pressure turbine and intermediate pressure turbine.

IPSC will provide a contractor to do abrasive blast cleaning and an NDE contractor to perform nondestructive examination of turbine components. IPSC will be responsible for cleaning components requiring hand cleaning.

The intermediate pressure rotor, diaphragms, packing boxes, and packing hardware will be removed, sand blasted, and NDE inspected.

All components will be marked and located in an accessible location.

All steam joint surfaces will be cleaned and stoned.

In the event the rotor or any steam packing component is sent off plant site for repairs, the Contractor will be notified regarding the location of the repair facility and the return shipment schedule.

- a. Services: The following services will be provided by IPSC:

Overhead crane and operator to unload, setup tooling, and packing ring holders for measurement and installation of packing.

Nominal 480 volt alternating current electrical service.

Craft labor assistance as required.

IPSC will align diaphragms and packing boxes prior to installation of packing

## DIVISION F2

GENERAL DESIGN AND PACKING REQUIREMENTS

---

segments.

Sandblasting equipment and services.

NDE of components.

4. Contractor Responsibilities The Contractor shall be responsible for the following:

The Contractor shall provide a detailed estimate of savings

The Contractor shall be responsible for the technical services associated with the packing installation including technical direction, engineering support, and all measurements during the scheduled overhaul.

Contractor personnel shall perform all machining required for installation of packing and spill strips including butt clearances, retaining pin slots, and final radial clearances.

The Contractor shall install packing rings and spill strips into the packing ring holders during reassembly of the IP turbine section.

The Contractor shall provide all tooling and machine tools necessary to ensure proper fit of the packing and spill strip segments.

The Contractor shall provide a final report of all work accomplished during the outage.

a. Opening Inspection: The Contractor shall perform the following tasks after the unit is open for inspection:

Measure rotor diameters at packing fit locations.

Measure critical hook fit dimensions on the steam packing holders to identify existing distortion.

Verify dimensions of steam packing and spill strips supplied under these specifications for installation in the unit.

Re-engineer and upgrade currently installed retractable end packings in the high pressure turbine N1 (grooves 4 - 7) and N2 (grooves 6 - 7).

All dimensions and findings of the open inspection shall be submitted to IPSC as requested and included in the final report.

DIVISION F2

GENERAL DESIGN AND PACKING REQUIREMENTS

---

5. Additional Information: The following information required to bid is included with these specifications:

IP TURBINE CROSS-SECTIONAL DRAWING

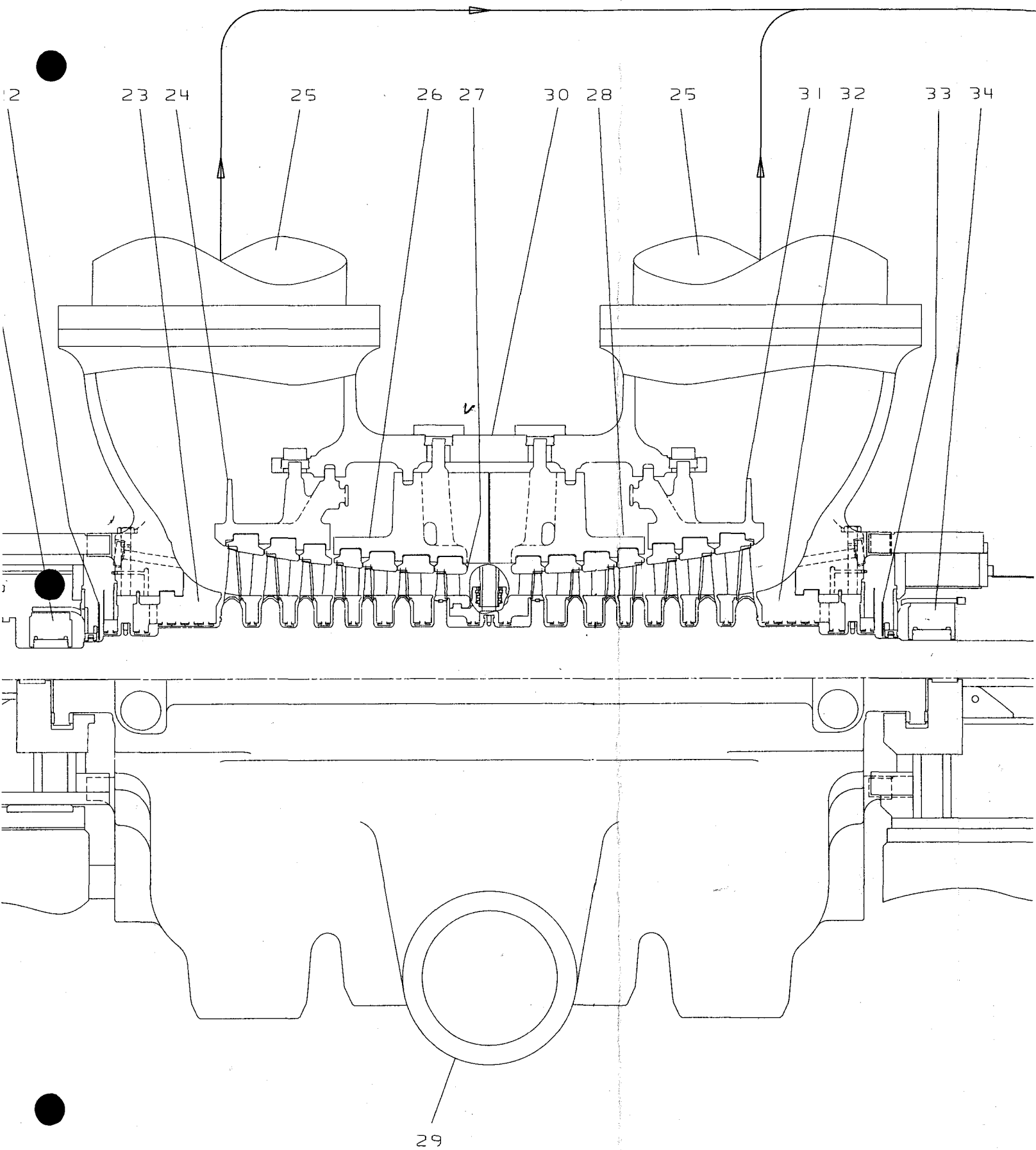
IP ROTOR CLEARANCE DIAGRAM

UNIT 1 AS-FOUND ROTOR CLEARANCE FROM LAST INSPECTION

UNIT 2 AS-FOUND ROTOR CLEARANCE FORM LAST INSPECTION

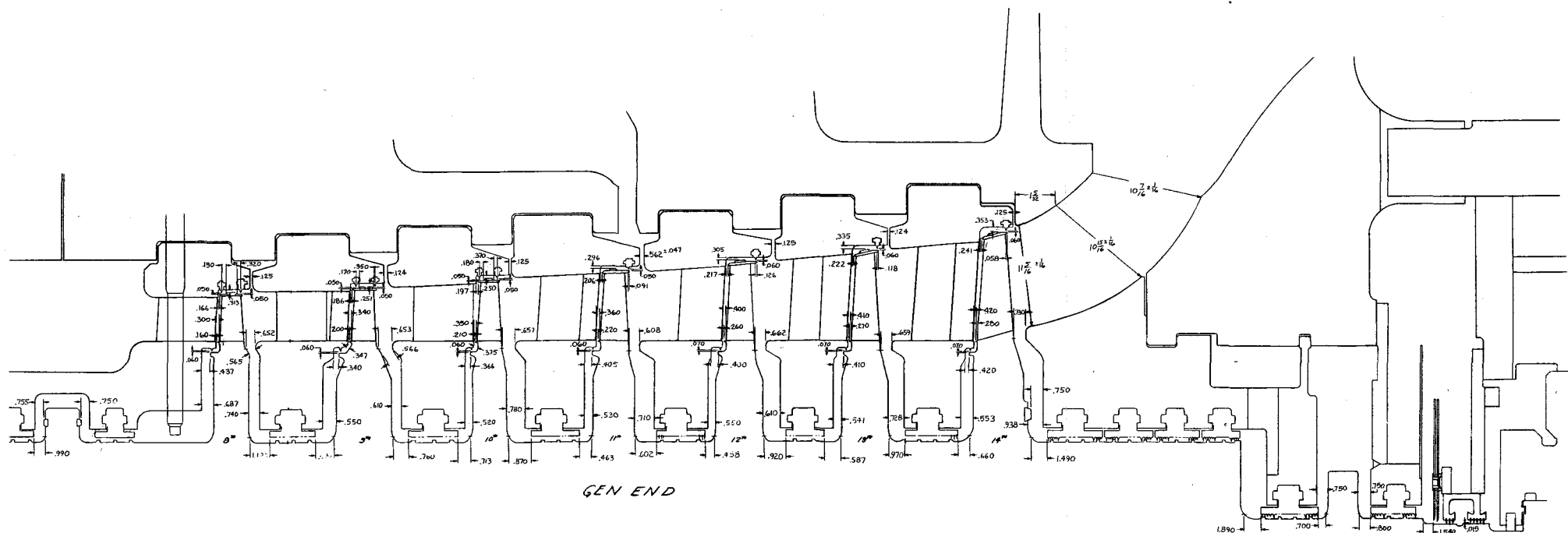
Additional drawings, documents, and outage inspection data will be available to the Contractor at the plant site.

# IP TURBINE CROSS-SECTIONAL DRAWING



IP7\_005239

# IP ROTOR CLEARANCE DIAGRAM - GENERATOR END



GEN END

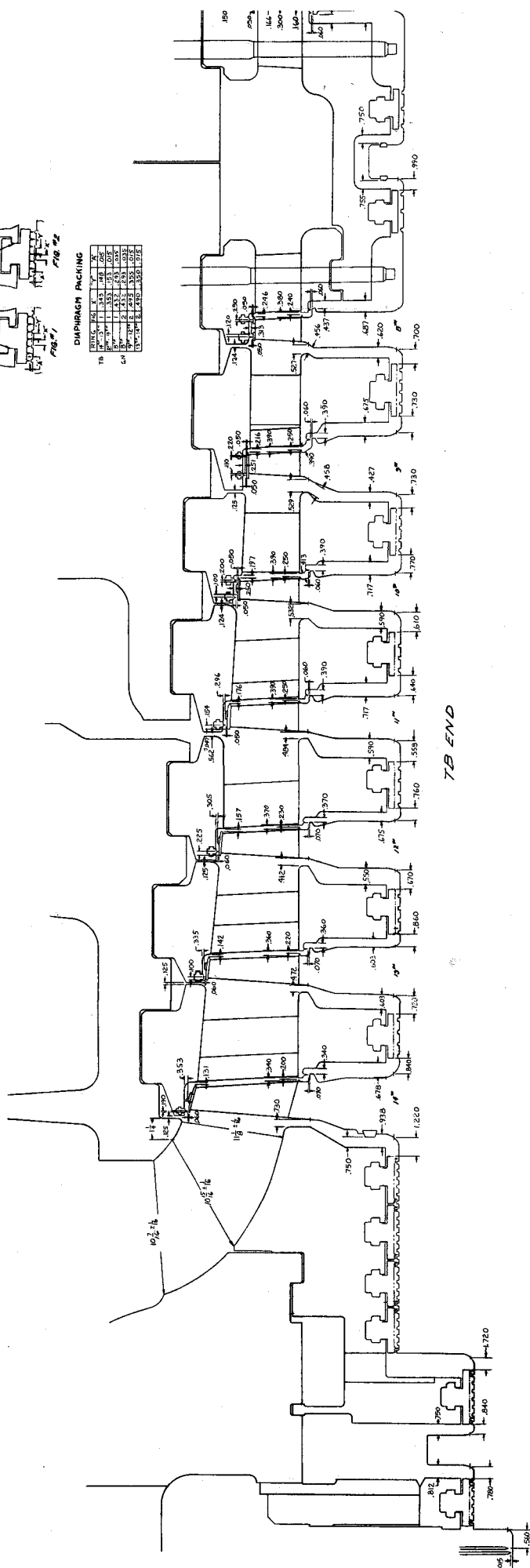
Clearance Diagram —  
RHT Rotor  
Dwg. 269R971, Rev. 0

Fig. 5-13

IP7\_005240

[illegible]

	Ring	Wt	X	Y	Z
TB	4"-3"	1	.345	.148	.015
	6"-9"	1	.353	.153	.015
LN	8"-9"	1	.432	.203	.035
	8"-8"	2	.432	.203	.035
	9"-12"	2	.495	.355	.015
	13"-14"	2	.490	.350	.015



END

# Intermountain Generating Station - UNIT 2

Intermediate Pressure Turbine

Interstage Packings

Opening clearances - 11/5/93

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.017	0.041	0.345	0.335	0.323	0.344	0.354	0.314	0.321	0.316	0.047	0.029	0.057	0.054	0.049
IP - Tend	10	0.029	0.030	0.346	0.339	0.330	0.341	0.340	0.320	0.326	0.324	0.039	0.030	0.044	0.043	0.040
IP - Tend	11	0.029	0.023	0.339	0.339	0.341	0.347	0.341	0.316	0.317	0.304	0.036	0.026	0.037	0.039	0.041
IP - Tend	12	0.019	0.025	0.354	0.348	0.352	0.360	0.362	0.312	0.339	0.323	0.036	0.022	0.035	0.050	0.039
IP - Tend	13	0.024	0.040	0.292	0.298	0.296	0.323	0.303	0.295	0.276	0.247	0.038	0.032	0.044	0.033	0.045
IP - Tend	14	0.035	0.034	0.306	0.301	0.307	0.317	0.316	0.296	0.278	0.266	0.047	0.035	0.053	0.047	0.054
Averages												0.041	0.029	0.045	0.044	0.044

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.030	0.033	0.356	0.364	0.356	0.352	0.358	0.349	0.349	0.351	0.034	0.032	0.036	0.032	0.037
IP - Gend	10	0.020	0.039	0.355	0.358	0.351	0.339	0.345	0.351	0.337	0.336	0.033	0.030	0.035	0.025	0.042
IP - Gend	11	0.035	0.030	0.349	0.361	0.342	0.342	0.354	0.300	0.306	0.326	0.049	0.033	0.060	0.054	0.050
IP - Gend	12	0.022	0.028	0.350	0.333	0.359	0.360	0.354	0.328	0.331	0.342	0.032	0.025	0.032	0.047	0.026
IP - Gend	13	0.033	0.027	0.297	0.295	0.294	0.290	0.309	0.290	0.261	0.267	0.045	0.030	0.056	0.041	0.055
IP - Gend	14	0.032	0.043	0.298	0.291	0.308	0.303	0.302	0.267	0.269	0.281	0.048	0.038	0.049	0.059	0.046
Averages												0.040	0.031	0.045	0.043	0.043

IP7\_005242

# Intermountain Generating Station - UNIT 2

Intermediate Pressure Turbine

Radial Spill Strips

Opening clearances - 11/5/93

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.063	0.087	0.237	0.207	0.243	0.249	0.236	0.239	0.225	0.218	0.080	0.075	0.078	0.089	0.078
IP - Tend	10	0.054	0.066	0.244	0.252	0.232	0.240	0.242	0.232	0.224	0.226	0.067	0.060	0.075	0.061	0.070
IP - Tend	11	0.050	0.058	0.250	0.243	0.251	0.248	0.245	0.224	0.199	0.204	0.069	0.054	0.077	0.068	0.076
IP - Tend	12	0.057	0.074	0.242	0.243	0.233	0.242	0.251	0.206	0.211	0.218	0.081	0.066	0.090	0.088	0.082
IP - Tend	13	0.056	0.071	0.244	0.243	0.244	0.246	0.245	0.211	0.207	0.229	0.074	0.064	0.083	0.081	0.071
IP - Tend	14	0.066	0.076	0.233	0.249	0.246	0.267	0.258	0.219	0.211	0.193	0.082	0.071	0.088	0.083	0.087
Averages												0.075	0.065	0.082	0.078	0.077

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.084	0.072	0.225	0.223	0.249	0.246	0.246	0.240	0.222	0.231	0.078	0.078	0.078	0.082	0.075
IP - Gend	10	0.055	0.073	0.231	0.257	0.235	0.243	0.240	0.257	0.253	0.243	0.055	0.064	0.056	0.043	0.057
IP - Gend	11	0.061	0.055	0.254	0.243	0.255	0.247	0.255	0.196	0.194	0.196	0.083	0.058	0.088	0.093	0.091
IP - Gend	12	0.066	0.065	0.244	0.233	0.249	0.262	0.246	0.236	0.238	0.231	0.068	0.066	0.067	0.076	0.064
IP - Gend	13	0.068	0.081	0.244	0.238	0.257	0.242	0.234	0.239	0.243	0.237	0.072	0.075	0.064	0.075	0.074
IP - Gend	14	0.065	0.075	0.244	0.26	0.258	0.237	0.236	0.198	0.209	0.225	0.077	0.070	0.077	0.081	0.079
Averages												0.072	0.068	0.071	0.075	0.073

IP7\_005243

# Intermountain Generating Station - UNIT 2

Intermediate Pressure Turbine

End Packings

Opening clearances - 11/5/93

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N3	1	0.036	0.039	0.293	0.293	0.309	0.293	0.299	0.291	0.284	0.300	0.038	0.038	0.037	0.042	0.037
N3	2	0.029	0.025	0.298	0.289	0.314	0.314	0.294	0.281	0.277	0.271	0.031	0.027	0.028	0.038	0.031
N3	3	0.031	0.027	0.301	0.291	0.308	0.300	0.299	0.297	0.272	0.285	0.035	0.029	0.039	0.035	0.037
N3	4	0.025	0.025	0.298	0.305	0.303	0.298	0.307	0.296	0.286	0.291	0.030	0.025	0.033	0.027	0.033
Averages												0.033	0.027	0.033	0.033	0.033

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N4	1	0.033	0.031	0.285	0.282	0.281	0.298	0.298	0.291	0.277	0.281	0.037	0.032	0.045	0.037	0.034
N4	2	0.030	0.035	0.295	0.286	0.287	0.297	0.309	0.288	0.273	0.299	0.043	0.033	0.055	0.048	0.037
N4	3	0.027	0.029	0.310	0.297	0.292	0.300	0.309	0.278	0.272	0.283	0.045	0.028	0.056	0.050	0.046
N4	4	0.029	0.023	0.301	0.307	0.302	0.301	0.307	0.280	0.279	0.296	0.033	0.026	0.040	0.037	0.032
Averages												0.039	0.030	0.049	0.043	0.037

IP7\_005244

# Intermountain Generating Station - UNIT 1

Intermediate Pressure Turbine

Interstage Packings

Opening clearances - 4/12/94

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.038	0.034	0.333	0.336	0.339	0.359	0.348	0.319	0.307	0.314	0.045	0.036	0.054	0.049	0.040
IP - Tend	10	0.025	0.033	0.356	0.365	0.351	0.353	0.347	0.325	0.315	0.318	0.039	0.029	0.048	0.036	0.045
IP - Tend	11	0.028	0.028	0.311	0.310	0.332	0.337	0.341	0.304	0.305	0.300	0.037	0.028	0.036	0.047	0.036
IP - Tend	12	0.032	0.021	0.348	0.356	0.337	0.344	0.331	0.305	0.307	0.323	0.035	0.027	0.044	0.036	0.033
IP - Tend	13	0.030	0.027	0.292	0.285	0.291	0.284	0.284	0.237	0.234	0.238	0.048	0.029	0.054	0.056	0.056
IP - Tend	14	0.047	0.039	0.290	0.298	0.289	0.292	0.293	0.246	0.235	0.238	0.062	0.043	0.073	0.063	0.070
Averages												0.044	0.032	0.051	0.048	0.046

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.032	0.040	0.330	0.326	0.334	0.325	0.352	0.309	0.295	0.310	0.054	0.036	0.063	0.060	0.060
IP - Gend	10	0.022	0.045	0.337	0.340	0.343	0.344	0.355	0.330	0.315	0.321	0.044	0.034	0.050	0.044	0.047
IP - Gend	11	0.017	0.040	0.355	0.347	0.343	0.325	0.349	0.324	0.304	0.306	0.049	0.029	0.057	0.045	0.065
IP - Gend	12	0.017	0.035	0.345	0.339	0.339	0.351	0.355	0.326	0.310	0.317	0.041	0.026	0.052	0.044	0.042
IP - Gend	13	0.050	0.043	0.283	0.297	0.297	0.290	0.317	0.252	0.220	0.244	0.072	0.047	0.088	0.072	0.080
IP - Gend	14	0.018	0.054	0.311	0.299	0.296	0.285	0.296	0.243	0.229	0.241	0.065	0.036	0.077	0.069	0.077
Averages												0.054	0.034	0.064	0.056	0.062

IP7\_005245

# Intermountain Generating Station - UNIT 1

Intermediate Pressure Turbine

Radial Spill Strips

Opening clearances - 4/12/94

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Tend	8															
IP - Tend	9	0.065	0.052	0.219	0.222	0.219	0.221	0.221	0.187	0.179	0.221	0.067	0.059	0.080	0.074	0.058
IP - Tend	10	0.050	0.057	0.236	0.234	0.238	0.230	0.233	0.217	0.194	0.234	0.061	0.054	0.072	0.063	0.056
IP - Tend	11	0.066	0.063	0.241	0.244	0.241	0.243	0.244	0.231	0.212	0.237	0.070	0.065	0.081	0.070	0.067
IP - Tend	12	0.091	0.053	0.235	0.239	0.238	0.239	0.236	0.214	0.209	0.234	0.077	0.072	0.084	0.081	0.071
IP - Tend	13	0.070	0.054	0.229	0.232	0.229	0.230	0.225	0.218	0.215	0.221	0.064	0.062	0.067	0.064	0.064
IP - Tend	14	0.080	0.076	0.224	0.226	0.224	0.220	0.224	0.206	0.205	0.213	0.084	0.078	0.088	0.086	0.086
Averages												0.071	0.065	0.078	0.073	0.067

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
IP - Gend	8															
IP - Gend	9	0.065	0.060	0.244	0.244	0.245	0.247	0.248	0.246	0.225	0.233	0.067	0.063	0.074	0.064	0.069
IP - Gend	10	0.050	0.057	0.237	0.237	0.233	0.236	0.232	0.242	0.215	0.223	0.056	0.054	0.064	0.049	0.059
IP - Gend	11	0.048	0.065	0.242	0.243	0.244	0.243	0.244	0.230	0.207	0.224	0.065	0.057	0.074	0.063	0.066
IP - Gend	12	0.060	0.071	0.231	0.233	0.230	0.233	0.235	0.197	0.187	0.205	0.080	0.066	0.090	0.084	0.080
IP - Gend	13	0.075	0.088	0.226	0.226	0.228	0.230	0.224	0.211	0.202	0.209	0.087	0.082	0.092	0.088	0.087
IP - Gend	14	0.08	0.078	0.218	0.218	0.229	0.222	0.227	0.211	0.182	0.191	0.089	0.079	0.096	0.087	0.095
Averages												0.074	0.066	0.082	0.072	0.076

IP7\_005246

# Intermountain Generating Station - UNIT 1

Intermediate Pressure Turbine

End Packings

Opening clearances - 4/12/94

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N3	1	0.030	0.029	0.295	0.271	0.287	0.279	0.278	0.277	0.256	0.294	0.036	0.030	0.045	0.042	0.029
N3	2	0.031	0.035	0.288	0.275	0.291	0.293	0.281	0.267	0.263	0.296	0.036	0.033	0.041	0.047	0.023
N3	3	0.022	0.030	0.286	0.280	0.263	0.284	0.279	0.290	0.280	0.306	0.025	0.026	0.037	0.024	0.014
N3	4	0.019	0.025	0.299	0.296	0.300	0.295	0.301	0.290	0.289	0.311	0.024	0.022	0.028	0.029	0.019
Averages												0.030	0.027	0.035	0.033	0.019

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N4	1	0.021	0.063	0.297	0.299	0.297	0.298	0.286	0.297	0.265	0.280	0.044	0.042	0.053	0.036	0.045
N4	2	0.014	0.033	0.310	0.304	0.303	0.314	0.310	0.303	0.274	0.282	0.034	0.024	0.045	0.030	0.036
N4	3	0.010	0.035	0.313	0.311	0.307	0.310	0.315	0.312	0.274	0.280	0.034	0.023	0.046	0.025	0.042
N4	4	0.010	0.032	0.314	0.314	0.306	0.305	0.314	0.314	0.283	0.284	0.031	0.021	0.041	0.021	0.041
Averages												0.035	0.027	0.046	0.028	0.041

IP7\_005247

Originator: AARON NISSEN  
Planner : KELLY CLOWARD  
Ref No :  
Drawing No: 2TGA-M2079  
Project ID:

```
Schedule Date  :
Shutdown Code  : N No Shutdown
Parts Required: NO
Issue Date    : 04/25/00
Priority Code   : 3A
```

Action Code : 0 MODIFICATIONS  
Matl Acct# : 002TGX-401  
Labor Acct# : 002TGX-101  
Clearance : N  
Standard Hrs: N

Brief Desc: CAPITAL PROJECT: PURCHASE/INSTALL RETRACTABLE  
PACKING FOR IF TURBINE SECTIONS, UNITS 1 AND 2.

BLDG COL-ROW ELEV

Equipment: 2TGA--2 2 TURBINE, INTERMED PRESS  
IP SECTION.  
COMBINED REHEAT INTERCEPT AND STOP VALVES 1A3 &  
1B3.

\*\* Planning Text Page \*\*

**\*\* Record Time Daily \*\***

**\*\* Delay Codes \*\***

Step	Description	Hours	Men	Day	Emp No	Date	Hours	Ent	Wbs	Crsp	Tag	Tool	Plan
1	CAPITAL PROJECT: PURCHASE/INSTALL RETRACTABLE PACKING FOR IF TURBINE SECTIONS, UNITS 1 AND 2.	10.00	1	1 [ E ]				E 3					
	DURING SPRING 2002 UNIT 2 OUTAGE, SPRING 2003 FOR UNIT 1 OUTAGE							E 3					
	UNIT 2 IF TURBINE PACKING TO BE INSTALLED IN SPRING 2002 OUTAGE.							E 3					
	UNIT 1 IF TURBINE PACKING TO BE INSTALLED IN SPRING 2003 OUTAGE.							E 3					
	ROUTE TO DAVE SPENCE FOR BUDGET JUSTIFICATION.							E 3					

COMMENTS: INDICATE ANY ADDITIONAL REMARKS ON REVERSE SIDE

REASON CODE: \_\_\_\_\_ FAILURE CODE: \_\_\_\_\_ EQUIP DOWNTIME HRS: \_\_\_\_\_ DATE COMPLETED: \_\_\_\_\_

COMPLETED BY EMP NO: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_ ACCEPTED BY EMP NO: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

**IP7\_005248**

## **2. Multi-Year Expenditure Program (MEP)**

- Multi-year expenditure
- Conceptual Cost Estimates

### **3. Authorization For Expenditure (AFE)**

- Detailed economic evaluation and alternatives  
(Required if over \$50,000)
- Emergency authorization memo
- Approved capital project justification sheet,  
miscellaneous budget sheet or substitution  
justification sheet

#### **4. Schedule**

- Job Sequence Schedule (JSS)

## **5. Cost Reports**

- Final cost reports from MPAC

**6. Miscellaneous Correspondence**

- Meeting minutes
- Memos and letters
- Copy of Project approval request letter to Bruce E. Blowey
- Completion notification letter to Bruce E. Blowey
- Work Package transmittal DKK to JDH

**From:** Kelly Cloward  
**To:** George Cross; Mike Alley; Norman Mincer; Ralph Newberry  
**Date:** Fri, Dec 27, 2002 3:23 PM  
**Subject:** Turbo Care

I placed req #187041 to have Turbocare provide installation services for packing rings not included in either the capital upgrade for the Unit 1 HP turbine, or the installation of the retractable packing on the IP turbine. Turbocare will be on site installing the rings for the capital projects, so it makes sense to have them fit the remainder of the rings.  
please call with questions  
KC

**CC:** Brad Thompson; Dave Spence; Stewart Rowley; Will Lovell

03 - 30522

IP7\_005254

**From:** Kelly Cloward  
**To:** George Cross; Mike Alley; Norman Mincer; Ralph Newberry  
**Date:** Fri, Dec 27, 2002 3:08 PM  
**Subject:** turbine packing

I placed ORO #187039 against the Unit 1 turbine uprate work order for replacement shaft packing not supplied by Alstom. This req uses capital funds.

I also placed ORO #187040 against the Unit 1 IP turbine overhaul work order for replacement shaft packing not being supplied by IGS01-17, which is a capital project for installation of variable clearance packing for both IP turbines. Unit 2 was done last year.

Please attempt to have material on hand by 2-20.

**CC:** Brad Thompson; Dave Spence; Richard Houston; Stewart Rowley; Will Lovell

IP7\_005255

**Estimated Percent Full Load Throttle For Closure**AutoRing Report  
03/29/2002  
3:51:12 PMCustomer : INTERMOUNTAIN  
Station : DELTA  
Unit Number : 2

Location	Est % FLT Closure	Low Tooth Height	High Tooth Height
N3 G1		1.235	1.360
N3 G2		1.235	1.360
N3 G3		1.235	1.360
N3 G4		1.235	1.360
N3 G5		1.235	1.360
N3 G6		1.235	1.360
N4 G1		1.235	1.360
N4 G2		1.235	1.360
N4 G3		1.235	1.360
N4 G4		1.235	1.360
N4 G5		1.235	1.360
N4 G6		1.235	1.360
STA 9TE	32.37	1.235	1.360
STA 9GE	42.97	1.235	1.360
STA 10TE	41.19	1.235	1.360
STA 10GE	58.60	1.235	1.360
STA 11TE	49.03	1.235	1.360
STA 11GE	23.23	1.235	1.360
STA 12TE	51.01	1.235	1.360
STA 12GE	65.75	1.235	1.360
STA 13TE	29.13	1.235	1.360
STA 13GE	33.90	1.235	1.360
STA 14TE	39.83	1.235	1.360
STA 14GE	41.15	1.235	1.360
N1 G1	41.15	1.235	1.360
N1 G2	41.15	1.235	1.360
N1 G3	41.15	1.235	1.360
N1 G4		1.235	1.360
N1 G5		1.235	1.360
N1 G6		1.235	1.360
N1 G7		1.235	1.360
N2 G1		1.235	1.360
N2 G2		1.235	1.360
N2 G3		1.235	1.360
N2 G4		1.235	1.360
N2 G5		1.235	1.360
N2 G6		1.235	1.360
N2 G7		1.235	1.360
N2 G8		1.235	1.360
N2 G9		1.235	1.360
N2 G10		1.235	1.360

IP7\_005256

## Estimated Percent Full Load Throttle For Closure

AutoRing Report  
03/29/2002  
3:51:12 PMCustomer : INTERMOUNTAIN  
Station : DELTA  
Unit Number : 2

Location	Est % FLT Closure	Low Tooth Height	High Tooth Height
N3 G1		1.235	1.360
N3 G2		1.235	1.360
N3 G3		1.235	1.360
N3 G4		1.235	1.360
N3 G5		1.235	1.360
N3 G6		1.235	1.360
N4 G1		1.235	1.360
N4 G2		1.235	1.360
N4 G3		1.235	1.360
N4 G4		1.235	1.360
N4 G5		1.235	1.360
N4 G6		1.235	1.360
STA 9TE	32.37	1.235	1.360
STA 9GE	42.97	1.235	1.360
STA 10TE	41.19	1.235	1.360
STA 10GE	58.60	1.235	1.360
STA 11TE	49.03	1.235	1.360
STA 11GE	23.23	1.235	1.360
STA 12TE	51.01	1.235	1.360
STA 12GE	65.75	1.235	1.360
STA 13TE	29.13	1.235	1.360
STA 13GE	33.90	1.235	1.360
STA 14TE	39.83	1.235	1.360
STA 14GE	41.15	1.235	1.360
N1 G1	41.15	1.235	1.360
N1 G2	41.15	1.235	1.360
N1 G3	41.15	1.235	1.360
N1 G4		1.235	1.360
N1 G5		1.235	1.360
N1 G6		1.235	1.360
N1 G7		1.235	1.360
N2 G1		1.235	1.360
N2 G2		1.235	1.360
N2 G3		1.235	1.360
N2 G4		1.235	1.360
N2 G5		1.235	1.360
N2 G6		1.235	1.360
N2 G7		1.235	1.360
N2 G8		1.235	1.360
N2 G9		1.235	1.360
N2 G10		1.235	1.360

IP7\_005257



# INTERMOUNTAIN POWER SERVICE CORPORATION

November 13, 2001

Mr. Michael Nosanov  
Operating Agent for the Intermountain Power Project  
Los Angeles Department of Water and Power  
111 North Hope Street, Room 1263  
Los Angeles, CA 90012-2694

Requisition 173417  
Variable Clearance Packing and Reduced Clearance Spill Strips

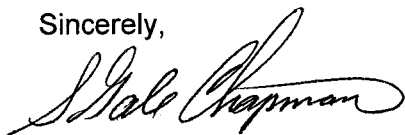
Dear Mr. Nosanov:

Attached for your review and approval is requisition 173417 and budgetary information for the purchase of variable clearing packing and reduced clearance spill strips for installation in the intermediate-pressure turbine sections for both Unit 1 and Unit 2. This project is part of IGS01-17 for 2001/02 and 2002/03 outages.


This requisition has been reviewed and approved by IPSC Management. Your approval of this requisition is requested by November 16, 2001. Due to the delivery requirements and time for prospective bidders to receive and return Bid Proposals, we are proceeding to invite Proposals prior to your approval.

If you have any questions regarding this request, please contact David Spence, ext. 6449 or Ralph C. Newberry, ext. 6544.

Sincerely,



S. Gale Chapman  
President and Chief Operations Officer

RCN:cle  
Attachments

cc: Dennis Killian w/o attachments  
David Spence  
Ralph C. Newberry  
contract file

**From:** Dave Spence  
**To:** Aaron Nissen; Jerry Hintze  
**Subject:** Budgetary Costs for IP & HP Turbine Packings

Here's some costs for capital project budgets that we didn't discuss yesterday. I know they are contingent on the GE miracle HP turbine installation but here they are anyway.

IP turbine retractable packing 00-7718-0  
Retractable Packing \$207,250  
Brush Seal Option \$102,000  
Spill Strip Upgrade \$ 28,000

Total \$337,250 per unit

Looks like the pay-back will be 2-3 yrs depending on whether we plan on replacing the worn conventional packings during the next outage.

The HP retractable packings will also need some maintenance or capital money. Tubocare has new design/measurement methods that they are recommending for upgrade of old retractable packing rings. They also say that the packing ring springs need to be replaced every outage. The first time these are replaced will require some machining of ring segments. They are also offering a brush seal upgrade of the existing retractable packings.

Packing inspection \$ 6,500  
Packing rework \$ 48,300  
Brush Seal Option \$ 51,000  
Pre Measurement \$ 5,000  
Installation \$ 16,000

Total HP cost \$126,800 per unit

Fuel cost savings from adding brush seals would pay-back this cost in less than 2 yrs.

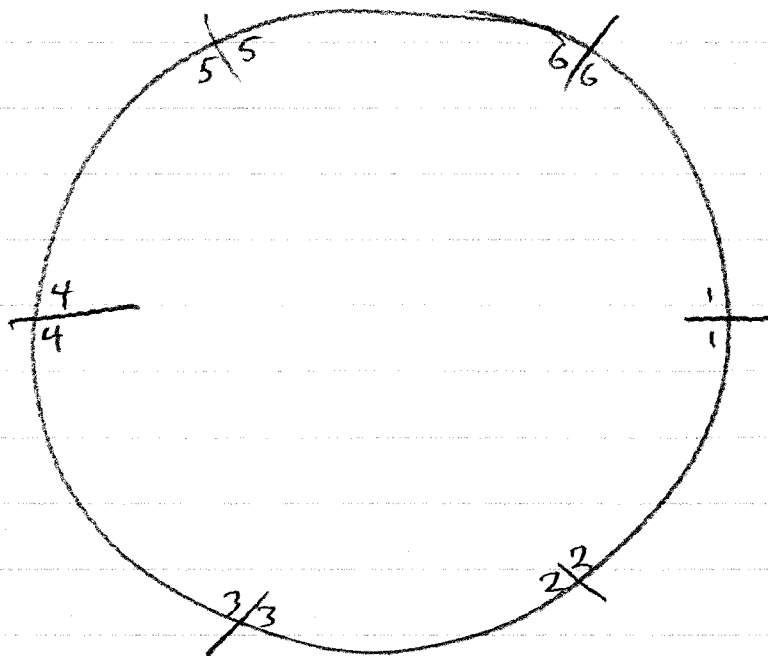
Note that we have to replace springs (\$11,000 + machining) even if we don't do anything. Cost of springs are in the Packing rework cost if we opt to go with it.

Do we want to roll this into the IP capital project or do it separately??

## **7. Design**

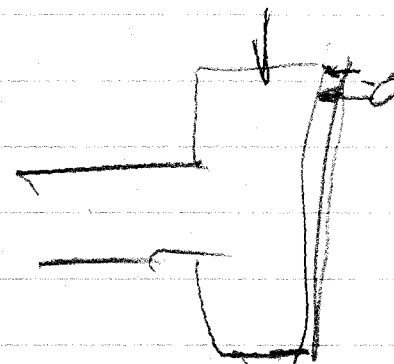
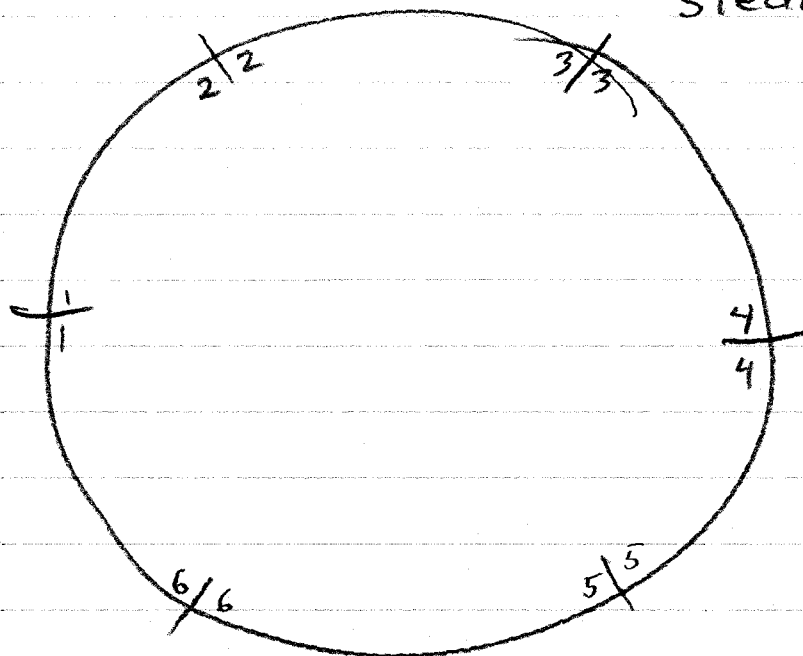
- Formulation and assumptions including safety concerns
- Alternative evaluation
- Project scope
  - Electrical and control
  - Mechanical
  - Civil and structural
- Detailed calculations
- Studies and analyses
- Copies of applicable codes

Turbo Care

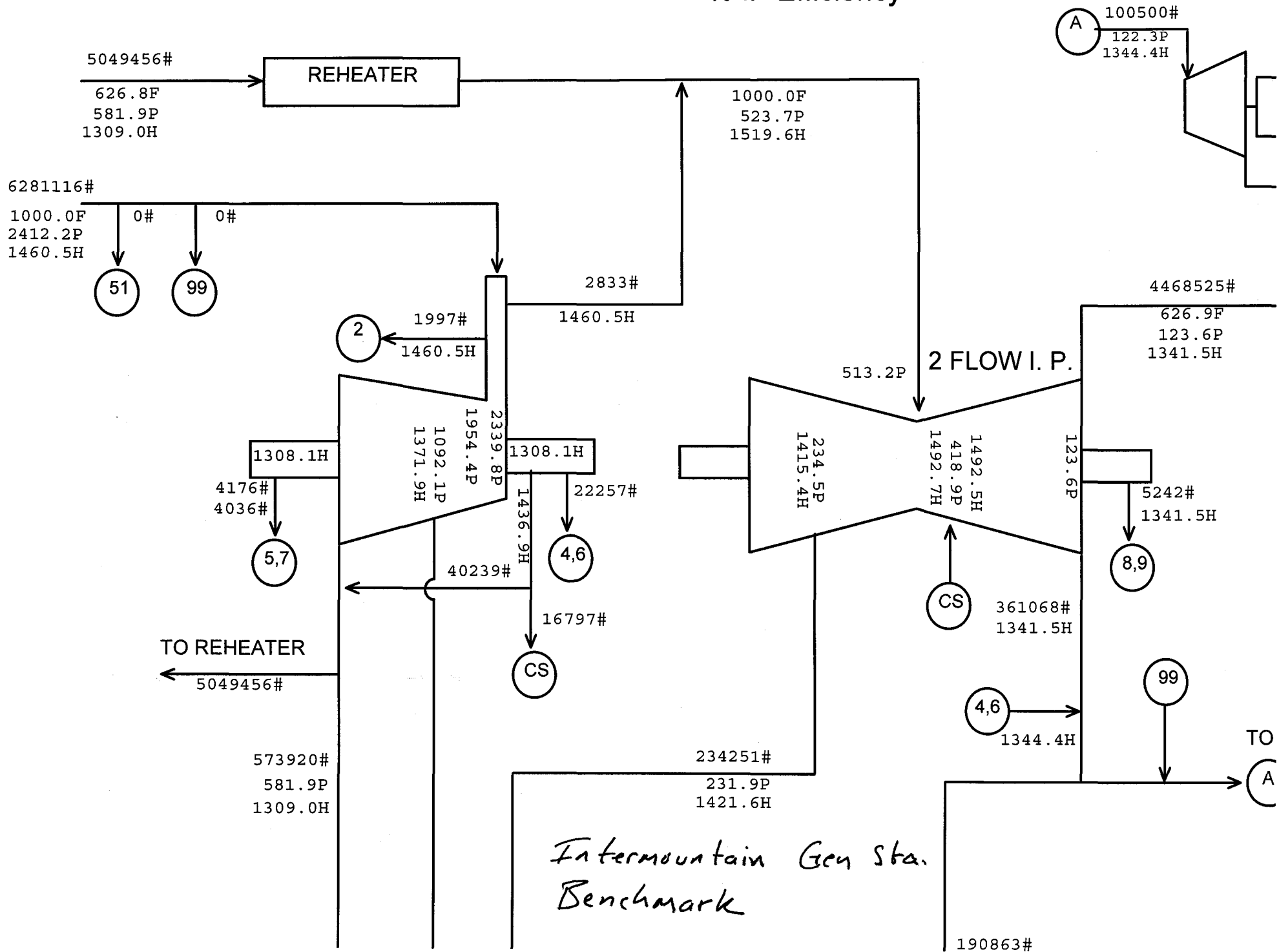


facing downstream

steam spec,



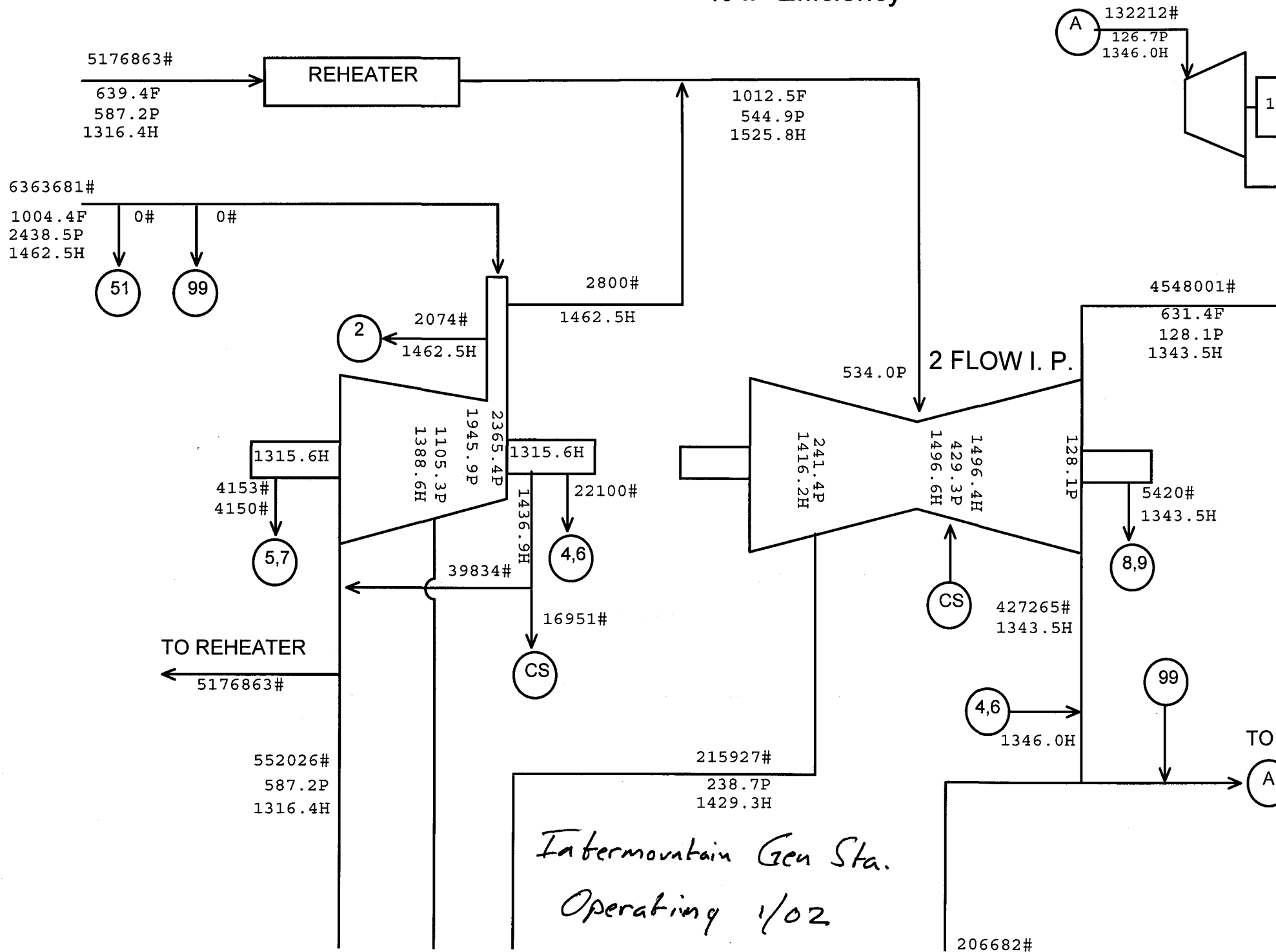
● 689.2 Net Turbine Cycle Heat Rate ● 37.10 % HP Efficiency  
90.05 % IP Efficiency



Intermountain Gen Sta.  
Benchmark

IP7\_005262

802.3 Net Turbine Cycle Heat Rate 83.67 % HP Efficiency  
91.36 % IP Efficiency



Intermountain Gen Sta.  
Operating 1/02

IP7\_005263

Turbocare Bid -

12/12/01

- Rick Day - Robert Hoggan
- Steam & Gas Repair
- T.S.I. - high serv & supply
- End Packings
- Clrnc - spill strips

Snout Rings ~ Rick / Kelley

high eff ~ articulated snout rings  
~ 10 days

\* See Rob Hoggan - quote in reb pkg  
spec

530 installed

55 Brush seals

Dishing - note C2-2

Maint concerns

CNC machine

coated Spill

\* Field Service - TC prefers change  
order re quote cont / don't track hrs etc

Brush Seals  $\Delta P$  350 psi

• Back plate  $>.015$

•  $O - .002$  Pratt & Whitney

~ usually close to middle -

~ needs to be retractable

~ only interstage packings

~ no dummy

Closure rates

70%  $\longrightarrow$  5 yrs

• Brush Seal spill strips \*

Coated Spills - ~ 1st

6% includes snout rings

12/11/00

①

## Economic Analysis - IP Packing upgrade

1. Economic life 6 yrs

last IP outage U-2 fall 93

This outage U-2 Sp 02

8.5y

use 8y Ec life

Assumptions

2. Heat rate SUGS

< Turbocare 8/00 est 37 Btu/kwh  
 ↳ Brush seal eff clnc .002"

< I got (9/1/00) only 9.2 B/kwh using  
 etech  
 tighter spill strips, no brush seals

Base evaluation on 37 Btu/kwh  
 8 yrs

3. Avoided costs -

2002 outage replace all conv packings

Int sbq &amp; packing rings

93 costs ( N3\$4 grv 1-4 \$ 14,353  
 9-14 Bolheads \$ 33,764  
\$ 48,117

4. Cost of money ~~6.35%~~ <sup>8.00%</sup>, 8 y

✓ PV factor = ~~6.15~~ 5.75

✓ NO infl ~~3%~~ - 3% NO O&M over life

• Annual Svc = \$365,598

\$365,598 × 5.75 = \$2,102,000

+ conv packing repl 48,000 Avoided costs

\$2,150,000

~~Payback~~ Capital Cost

337,250 mob & inst  
+ 2,000 eng  

---

339,250

Payback  $\frac{340,000}{365,598} = 0.9$  years

B/C  $\frac{2,150,000}{340,000} = 6.32$

8/22/00

Capital Project - Install retractable packings on  
WOW

00-7718

For: U2 Spring 2002  
U1 Spring 2003

Scope - # of rings ? Need Clearance diag.

	TE	GE	
9th	1	1	
<u>inter stage</u> 10th	1	1	
11th	1	1	
12th	1	1	
13th	1	1	
14th	1	1	

12 rings (1 groove ea)  
type hi-lo

End Packings ? 4 grooves each end.

- HBD  $\Delta P$  design 507.7  $\rightarrow$  122.2 = 385.5  
486 HB 249 7 stages  $\sim$  55 psi / stage press drop.  
VWO NP

Vendors

GE

Process Engineered Systems  
Local rep.

changed ~~Quabbin~~ - Rick Day ? old rep 303-366-8504  
new  $\rightarrow$  Turbocare - 1-800-887-2622

HP Packings replaced

IP7\_005268

8/1/00 - Average IS packing clrc U2 93 opening 40.5 mils  
 Stages 9-14 See U2 IP opening clearances  
 Average Rad SS clrc U2 93 opening 75 mils  
 Average End packing clrc " " " 36 mils

9/1/00 - From encoteck STAE expected heat rate savings from new IP retractable packings & tighter clrc spill strips design  $-.015"$  is  $2 \times -4.59 = -9.2 \text{ Btu/kwh}$  per unit.

{ Problem with IP Gou end int sbg packings calc?? used values from gen end x 2.  
 See STAE "ret packing evaluation" audit case note I changed design SS clrcs for this study.

use 9.2 Btu/kwh for ec evaluation

IS - 0.7 Btu/kwh  
 end - 4.4  
 - 2.2  
 HP

HP	- Springs	# 11,000	New packing design
	brush seals	# 51,000	43,000
			20 groups
		<del>126,000</del>	120,300
			2.2 Btu
IP	Packing	# 207,500	$2.2 + 0.510 = 3.0$
	Brush seals	107,000	-0.4
	Spill strips	73,000	6.2

8/30/00

- IP Packing replacement

Economics

8/30/00

Savings from reduced packing clearance

Interstage - to design clnces 0.015 all

Spill strips - to -15 mils design clnces

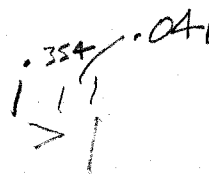
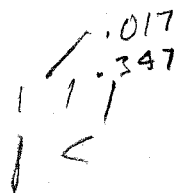
Use Opening clnces from last steam path audits

U2 opening 93

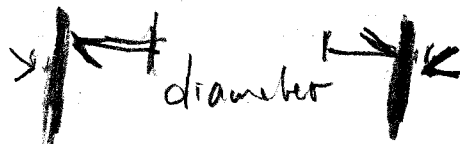
U1 " 94

For as-found for this evaluation

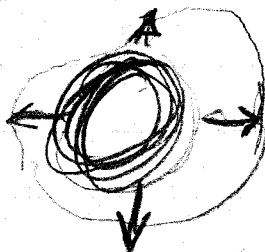
(Need to change SFE IP Gen end # teeth)



Assume  
casing



shaft concentric design  $.015 \times 2 = .030''$

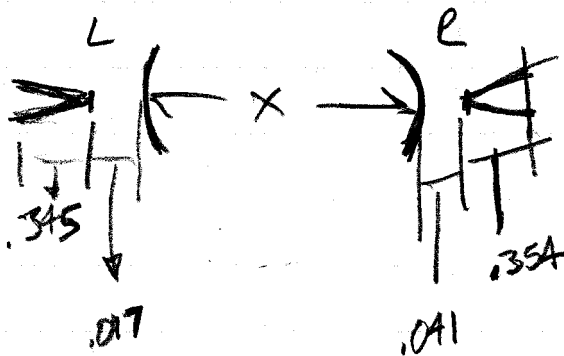


top / Bottom  
Left Right

\* Assume shaft concentric in packing (casing)

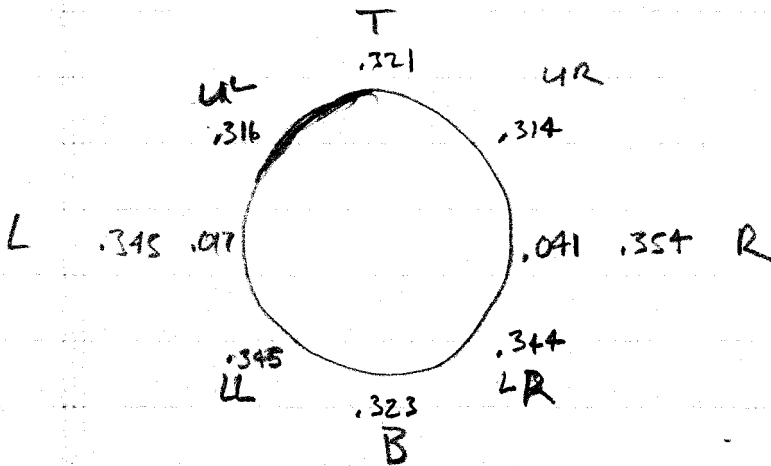


$$2 \times C_c + D_{\text{shaft}}$$



$$\text{Avg} = .029''$$

$$Des = .015$$



Casing dia L-R

$$.345 + .017 + X + .041 + .354$$

$$= X + .757$$

$$\text{Ave clinc} = T_{H1} + T_{H2} + 2A_{CL} + X$$

$$UL \rightarrow LR =$$

$$.757 = .316 + .344 + 2A_{CL}$$

$$A_{CL} = \frac{.757 - .660}{2} = .0485$$

Called PES - Rick Day 8/23/00 - left message

8/24/00 - Reviewed turbocore quote for LP replacement 10/99  
noted a few exceptions:

discuss  
with  
Rick Day

- Evacuation benefit - additional capacity ??  
Should not be in our cost estimate
- Want install in IP Section alone ?? p.5
- $\Delta P$  limitations - 250 psi max brush seals need heat treat
- replacement costs - Springs each outage 7616K
- Brush seals vs conventional retractable packing
- Can brush seals be added to existing retract.  
packing i.e. HP turbine - yes quote
- flow coeff / kg coeff for brush seals? need test  
data not just 15-17x reduction - asked for  
flow coeff.
- Springs - 1/2" of corners  
heat treated / ours

Rick phone call  
8/24/00 2:30  
discussed all concerns

contract  
62.1001

8/24/00 - 201 2109 - Rick Day -  
Needs IP clearance diagrams  
Dwg - 269R971 rev 0  
Cross section  
Dwg 252R700 rev. 1

#### **8. Drawings**

- Documentation Transmittal Form (For Design Review only)
- Documentation Transmittal Form (For Construction)
- Drawings
- Engineering sketches
- Closeout package

## **9. Quality Assurance Report**

- Project Quality Control Plan (QCP)
- Quality assurance report
- Inspection report forms

Customer  
Station  
Unit #

Intermountain Pr.  
Delta  
2

**TurboCare**  
A Division of DEMAG DELAVAL Turbomachinery Corp.

Thrust not yet set



## PACKING & SPILL STRIP Clearance Record

DATE: 3-19-02

TURBINE S/N:

PREPARED BY: T. Hug

Location	*	Packing			Spill Strips		
		Left	Right	Comments	Left	Right	Comments
N3-G1	E	.021	.021				
	A	.027	.021				
	D	.015	.015				
N3-G2	E	.021	.021				
	A	.023	.019				
	D	.015	.015				
N3-G3	E	.018	.018				
	A	.024	.017				
	D	.015	.015				
N3-G4	E	.018	.018				
	A	.022	.018				
	D	.015	.015				
N3-G5	E	.018	.018				
	A	.023	.016				
	D	.015	.015				
N3-G6	E	.018	.018				
	A	.022	.015				
	D	.015	.015				
14 T	E	.025	.025		.042	.042	
	A	.027	.021		.049	.042	
	D	.015	.015		.045	.045	
13 T	E	.020	.020		.040	.040	
	A	.026	.017		.046	.047	
	D	.015	.015		.045	.045	

As Found \_\_\_\_\_ Final \_\_\_\_\_

\*E = Expected

\*A = Actual

\*D = Design

IP7\_005275

Customer  
Station  
Unit #

**PACKING & SPILL STRIP  
Clearance Record**

(Closeup)

DATE:

TURBINE S/N:

PREPARED BY:

Location	*	Packing			Spill Strips		
		Left	Right	Comments	Left	Right	Comments
12 T	E	.021	.021		.037	.037	
	A	.021	.022		.049	.040	
	D	.015	.015		.045	.045	
11 T	E	.019	.019		.031	.031	
	A	.024	.028		.040	.041	
	D	.015	.015		.035	.035	
10 T	E	.022	.022	2	.033	.033	
	A	.026	.025	1	.035	.035	
	D	.015	.015	2	.040	.035	
9 T	E	.026	.026	1	.037	.031	
	A	.031	.030	2	.035	.035	
	D	.015	.015	1	.040	.043	
8 T	E	.046	.046				
	A	.055	.053	2	.047	.062	
	D	.035	.035	1	.040	.053	
8 G	E	.047	.047		.040	.040	plus
	A	.050	.052	1			
	D	.035	.035	2	.057	.054	
9 G	E	.025	.025	1	.055	.048	
	A	.027	.024	2	.040	.040	plus
	D	.015	.015	1	.048	.048	
10 G	E	.022	.022	2	.056	.056	
	A	.025	.017	1	.055	.048	
	D	.015	.015	2	.046	.044	

As Found \_\_\_\_\_ Final \_\_\_\_\_

\*E = Expected

\*A = Actual

\*D = Design

IP7\_005276

Customer  
Station  
Unit #

**PACKING & SPILL STRIP  
Clearance Record**

(Closing)

DATE:

TURBINE S/N:

PREPARED BY:

Location	*	Packing			Spill Strips		
		Left	Right	Comments	Left	Right	Comments
11 G	E	.018	.018		.033	.033	
	A	.025	.021		.037	.039	
	D	.015	.015		.035	.035	
12 G	E	.018	.018		.038	.038	
	A	.028	.020		.045	.046	
	D	.015	.015		.045	.045	
13 G	E	.016	.016		.042	.042	
	A	.026	.019		.057	.041	
	D	.015	.015		.045	.045	
14 G	E	.016	.016		.039	.039	
	A	.026	.015		.052	.041	
	D	.015	.015		.045	.045	
N4-G1	E	.015	.015				
	A	.017	.017				
	D	.015	.015				
N4-G2	E	.016	.016				
	A	.020	.010				
	D	.015	.015				
N4-G3	E	.017	.017				
	A	.023	.012				
	D	.015	.015				
N4-G4	E	.017	.017				
	A	.027	.010				
	D	.015	.015				

As Found \_\_\_\_\_ Final \_\_\_\_\_

\*E = Expected

\*A = Actual

\*D = Design

IP7\_005277

Customer  
Station  
Unit #

**TurboCare**<sup>®</sup>  
A Division of DEMAG DELAVAL Turbomachinery Corp.

IP

## PACKING & SPILL STRIP Clearance Record

DATE: TURBINE S/N: PREPARED BY:

Location	*	Packing			Spill Strips		
		Left	Right	Comments	Left	Right	Comments
N4-G5	E	.015	.015				
	A	.030	.0				
	D	.015	.015				
N4-G6	E	.023	.023				
	A	.030	.011				
	D	.015	.015				
	E						
	A						
	D						
	E						
	A						
	D						
	E						
	A						
	D						
	E						
	A						
	D						
	E						
	A						
	D						

As Found \_\_\_\_\_ Final \_\_\_\_\_

\*E = Expected

\*A = Actual

\*D = Design

IP7\_005278

# PACKING RINGS

CUSTOMER: Intermountain Power-Delta UNIT: 2 DATE: 3-8-02

(HP IP LP) PLANT CONTACT: Dave Spence ENGINEER: T. Hugg

CUSTOMER APPROVAL \_\_\_\_\_

LOCATION	HIGH TOOTH BORE DIA. (UPPER REF.)	HIGH TOOTH BORE DIA. (LOWER)	ROTOR DIA.	TOTAL CLR.	RADIAL CLR.	DESIGN RADIAL CLEARANCE	NOTES	APPD. BY
N1-G1	19.789	19.780	19.728	.052	.026	.025		
N1-G2	19.780	19.777	19.728	.049	.026	.025		
N1-G3	23.541	23.538	23.499	.039	.020	.020		
N1-G4	23.541	23.538	23.499	.039	.020	.020		
N1-G5	23.546	23.540	23.499	.041	.020	.020		
N1-G6	23.538	23.536	23.499	.037	.019	.020		
N1-G7	23.540	23.538	23.499	.039	.020	.020		
N2-G5	27.783	27.769	27.747	$\frac{1}{4}$ .036	.018	.040	.022 off $\frac{1}{4}$ teeth ✓	
N2-G6	27.779	27.751	27.747	$\frac{1}{4}$ .004	.002	.020	.029 off $\frac{1}{4}$ teeth ✓	
N2-G7	27.783	27.763	27.747	$\frac{1}{4}$ .036	.018	.020	.018 off $\frac{1}{4}$ teeth ✓	
				$\frac{1}{4}$ .016	.008	.020	.012 off $\frac{1}{4}$ teeth ✓	

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DENAG DELAVAL TURBOCOMBUSTION CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) PERFORM A CONTRACT WITH DENAG DELAVAL TURBOCOMBUSTION CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. RECIPIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

DR BY LJC DATE 11/20/94 CHKD BY JJK DATE 08/22/96 PART NO. FLD007.DWG REV. 4

TurboCare

IP7\_005279

# PACKING RINGS

CUSTOMER: \_\_\_\_\_ UNIT: \_\_\_\_\_ DATE: \_\_\_\_\_

(HP IP) LP ) \_\_\_\_\_ PLANT CONTACT: \_\_\_\_\_ ENGINEER: \_\_\_\_\_

CUSTOMER APPROVAL \_\_\_\_\_

LOCATION	HIGH TOOTH BORE DIA. (UPPER REF.)	HIGH TOOTH BORE DIA. (LOWER)	ROTOR DIA.	TOTAL CLR.	RADIAL CLR.	DESIGN RADIAL CLEARANCE	NOTES	APPD. BY
N2-G8	27.786	27.755	27.747	$\frac{1}{4}$ .039 $\frac{1}{4}$ .008	.020 .004	.020	.016 off $\frac{1}{4}$ teeth ✓	
N2-G9	27.780	27.766	22.728	$\frac{1}{4}$ .052 $\frac{1}{4}$ .038	.026 .019	.025		
N2-G10	27.780	27.768	22.728	$\frac{1}{4}$ .052 $\frac{1}{4}$ .040	.026 .020	.025		
N3-G1	20.778	20.774	20.731	.043	.021	.015		
N3-G2	20.782	20.782	20.740	.042	.021	.015		
N3-G3	24.788	24.786	24.750	.036	.018	.015		
N3-G4	24.787	24.787	24.750	.037	.018	.015		
N3-G5	24.789	24.786	24.750	.036	.018	.015		
N3-G6	24.785	24.787	24.750	.037	.018	.015		

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DEWAG DELAVAL TURBOMACHINERY CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) PERFORM A CONTRACT WITH DEWAG DELAVAL TURBOMACHINERY CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. RECIPIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

DR BY LJC DATE 11/20/94 CHKD BY JJK DATE 08/22/96 PART NO. FLD007.DWG REV. 4

**TurboCare**

IP7\_005280

# PACKING RINGS

CUSTOMER: \_\_\_\_\_ UNIT: \_\_\_\_\_ DATE: \_\_\_\_\_

( HP IP LP ) \_\_\_\_\_ PLANT CONTACT: \_\_\_\_\_ ENGINEER: \_\_\_\_\_

CUSTOMER APPROVAL \_\_\_\_\_

LOCATION	HIGH TOOTH BORE DIA. (UPPER REF.)	HIGH TOOTH BORE DIA. (LOWER)	ROTOR DIA.	TOTAL CLR.	RADIAL CLR.	DESIGN RADIAL CLEARANCE	NOTES	APPD. BY
14 T	24.809	24.805	24.754	.051	.025	.015	(Bowed out at joint) hooks .005 ✓	
13 T	24.797	24.790	24.750	.040	.020	.015		
12 T	24.783	24.784	24.751	.043	.021	.015		
11 T	24.793	24.788	24.750	.038	.019	.015		
10 T	24.796	24.794	24.750	.044	.022	.015		
9 T	24.800	24.802	24.750	.052	.026	.015		
9 G	24.783	24.801	24.750	.051	.025	.015		
10 G	24.795	24.794	24.750	.044	.022	.015		
11 G	24.799	24.787	24.752	.035	.018	.015		
12 G	24.788	24.787	24.751	.036	.018	.015		

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DEWAG DELAVAL TURBOMACHINERY CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) PERFORM A CONTRACT WITH DEWAG DELAVAL TURBOMACHINERY CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. RECIPIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

DR BY LJC DATE 11/20/94 CHKD BY JJK DATE 08/22/96 PART NO. FLD007.DWG REV. 4

**TurboCare**

IP7\_005281

# PACKING RINGS

CUSTOMER: \_\_\_\_\_ UNIT: \_\_\_\_\_ DATE: \_\_\_\_\_

( HP IP LP ) \_\_\_\_\_ PLANT CONTACT: \_\_\_\_\_ ENGINEER: \_\_\_\_\_

CUSTOMER APPROVAL \_\_\_\_\_

LOCATION	HIGH TOOTH BORE DIA. (UPPER REF.)	HIGH TOOTH BORE DIA. (LOWER)	ROTOR DIA.	TOTAL CLR.	RADIAL CLR.	DESIGN RADIAL CLEARANCE	NOTES	APPD. BY
13 G	24.786	24.783	24.751	.032	.016	.015		
14 G	24.787	24.785	24.752	.033	.016	.015		
N4-G1	24.785	24.781	24.752	.029	.015	.015		
N4-G2	24.785	24.785	24.752	.033	.016	.015		
N4-G3	24.789	24.787	24.752	.035	.017	.015		
N4-G4	24.791	24.788	24.753	.035	.017	.015		
N4-G5	20.786	20.781	20.750	.031	.015	.015		
N4-G6	20.779	20.776	20.730	.046	.023	.015		
8 T	20.804	20.800	24.707	.093	.046	.035 +		
8 G	20.804	20.803	24.709	.094	.047	.035 +		

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DEMAG DELAVAL TURBOMACHINERY CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) PERFORM A CONTRACT WITH DEMAG DELAVAL TURBOMACHINERY CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. RECIPIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

DR BY LJC DATE 11/20/94 CHKD BY JJK DATE 08/22/96 PART NO. FLD007.DWG REV. 4

**TurboCare**

IP7\_005282

4

# Encotech™ Steam Turbine Performance Evaluation

OWNER:

STATION:

I G S

UNIT NO: \_\_\_\_\_

INVESTIGATOR: Spivey/Aug

DATE: \_\_\_\_\_

PROJECT NO: 14P closing

## END PACKINGS DATA SHEET

Casing: HP

Location and Ring Number	Tooth		Clearance		Condn	Tooth Heights							Out of Round			Additional Info		
	Type	Active Number	Left	Right	% Round (%)	Left	Bottom Left	Bottom	Bottom Right	Right	Top Right	Top	Top Left	Tops On Diameter		Tops Off Diameter Horz	Tooth Meas	Side US/DS
			(in.)	(in.)		(in.)	(in.)	(in.)	(in.)	(in.)	(in.)	Horiz	Vert					
N161			27	27														
G2			26	29														
G3			18	26														
G4			14	22														
G5			17	21														
G6			15	21														
G7			21	26														
N25			42	43														
6			23	21														
7			20	17														
8			18	22														
9			17	21														
10			17	22														

Packing Types:

No Tooth

Single Axial

Single Radial

Double Straight

Two Single

Straight-Smooth

HoneyComb

Double & Single

Step

HiLo Labyrinth

Slant-Slant

Slant-Smooth

Alternate

Customer \_\_\_\_\_  
 Station \_\_\_\_\_  
 Unit # \_\_\_\_\_

## PACKING & SPILL STRIP Clearance Record

DATE: \_\_\_\_\_

TURBINE S/N: \_\_\_\_\_

PREPARED BY: \_\_\_\_\_

Location	*	Packing			Spill Strips		
		Left	Right	Comments	Left	Right	Comments
N2-G2	E						
	A	.063	.033				
	D						
N2-G3	E						
	A	.047	.031				
	D						
N2-G4	E						
	A	.045	.023				
	D						
N2-G5	E						
	A	.054	.057				
	D						
N2-G6	E						
	A	.076	.026				
	D						
N2-G7	E						
	A	.047	.038				
	D						
N2-G8	E						
	A	.030	.033				
	D						
N2-G9	E						
	A	.035	.042				
	D						

As Found \_\_\_\_\_

Final \_\_\_\_\_

\*E = Expected

\*A = Actual

\*D = Design

Customer  
Station  
Unit #

Intermountain Power  
Delta  
2

**TurboCare**  
A Division of DEMAG DELTAAL Turbomachinery Corp.

(HP)

## PACKING & SPILL STRIP Clearance Record

DATE:

TURBINE S/N:

PREPARED BY:

Location	*	Packing			Spill Strips		
		Left	Right	Comments	Left	Right	Comments
N1-G1	E						
	A	.024	NA				
	D						
N1-G2	E						
	A	.045	.047				
	D						
N1-G3	E						
	A	.038	.037				
	D						
N1-G4	E						
	A	.015	.024				
	D						
N1-G5	E						
	A	.030	.027				
	D						
N1-G6	E						
	A	.025	.024				
	D						
N1-G7	E						
	A	.031	.029				
	D						
N2-G1	E						
	A	.048	.030				
	D						

As Found \_\_\_\_\_ Final \_\_\_\_\_

\*E = Expected

\*A = Actual

\*D = Design

IP7\_005285

## BUTT &amp; C SHEET

- NOTE: 1. DO NOT CUT BY WITH BRANDON  
 2. UPPER & LOWER HALFS TO BE DONE SEPARATELY.  
 3. CUT NO MORE THAN .100" PER SEC. (.050" PER SIDE)  
 4. BUTT TOLERANCE  $\pm .000$

(+)=CUT THAT AMOUNT  
 (-)=BUTY TO LARGE CHECK TOL.

## \* NEG. BUTTS

WHEN THE SIGNS TO THE LEFT ARE BOTH NEG.

1. IF DESIGN IS LARGER THAN AMOUNT  
 CHECK TOLERANCE.  
 2. IF AMOUNT IS LARGER THAN DESIGN SUBTRACT  
 AND CHANGE SIGN TO PLUS.

WHEN THE SIGNS TO THE LEFT ARE  
 DIFFERENT SUBTRACT AND USE  
 THE SIGN OF THE LARGER NUMBER.

-OR-

WHEN THE SIGNS TO THE LEFT ARE  
 THE SAME ADD AND USE THAT SIGN.

\* EXCEPT WHEN DESIGN IS A NEG. NUM.

LOCATION	UPPER		LOWER		ADD ALL UPPER	ADD ALL LOWER	AMOUNT OF BUTT	* DESIGN BUTT GAP	AMOUNT TO CUT	# OF SEGS TO CUT	# OF SIDES TO CUT	AMOUNT PER SIDE	FINAL UPPER BUTT
	LEFT	RIGHT	LEFT	RIGHT									
N1-G1	+ .038	.093	+ .104	.055	.055	+ .049	.006	.091	.085		2	.0434	
N1-G2	+ .069	.074	+ .059	.051	.005	.008	.003	.091 <sup>55</sup>	.094		1	.0474	
N1-G3	+ .039	.052	+ .128	.098	.013	.030	.017	.110 <sup>56</sup>	.127		1	.0424	
N1-G4	+ .048	.062	+ .098	.068	.014	.030	.016	.112 <sup>57</sup>	.128		2	.0434	
N1-G5	+ .550	.552	+ .051	.30	.002	.021	.019	.114 <sup>58</sup>	.133		1	.0554	
N1-G6	+ .537	.556	+ .111	.052	.019	.059	.040	.118 <sup>59</sup>	.158		2	.0394	
N1-G7	+ .563	.560	+ .059	.035	.003	.024	.027	.125 <sup>63</sup>	.152		2	.0334	
N2-G5	+ .150	0	+ .095	.169	.150	.074	.076	.012	.088		2	.0444	
N2-G6	+ .530	.530	+ .153	.068	0	.085	.085	.012	.097		1	.0064	
N2-G7	+ .590	.553	+ .194	.144	.037	.050	.087	.012	.099		1	.0434	
N2-G8	+ .129	.103	+ .166	.167	.026	.061	.025	.012	.037		1	.0564	
N2-G9	+ .125	.127	+ .091	.082	.002	.009	.007	.103	.110		1	.0374	
											1	.0504	
											1	.0604	

CUSTOMER: STATION: UNIT: DATE: ENGINEER:

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO BEARS RELATIVE TURBOCHARGER CORP. AND IS MADE AVAILABLE SOLELY TO (A) PERSON TO WHOM IT WAS MADE AS A PARTIAL FULFILLMENT OF A CONTRACT WITH BEARS RELATIVE TURBOCHARGER CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. WITHOUT THE WRITTEN PERMISSION OF BEARS RELATIVE TURBOCHARGER CORP.

DR BY LJC

DATE 6/19/94

CHKD BY JJD

DATE 6/19/95

PART NO.

FLD0002.DWG

REV. 3

TurboCare

# BUTT C. C SHEET

- NOTE: 1. DO NOT CUT BY WITH BRANDON  
2. UPPER & LOWER HALFS TO BE DONE SEPARATELY.  
3. CUT NO MORE THAN .100" PER SEC. (.050" PER SIDE)  
4. BUTT TOLERANCE +.000  
-.030

WHEN THE SIGNS TO THE LEFT ARE DIFFERENT SUBTRACT AND USE THE SIGN OF THE LARGER NUMBER.

-OR-

WHEN THE SIGNS TO THE LEFT ARE THE SAME ADD AND USE THAT SIGN.

\* EXCEPT WHEN DESIGN IS A NEG. NUM.

\* NEG. BUTTS

WHEN THE SIGNS TO THE LEFT ARE BOTH NEG.

1. IF DESIGN IS LARGER THAN AMOUNT CHECK TOLERANCE.
2. IF AMOUNT IS LARGER THAN DESIGN SUBTRACT AND CHANGE SIGN TO PLUS.

(+)=CUT THAT AMOUNT

(-)=BUTT TO LARGE CHECK TOL.

LOCATION	UPPER		LOWER		ADD ALL UPPER	ADD ALL LOWER	AMOUNT OF BUTT	* DESIGN BUTT GAP	AMOUNT TO CUT	# OF SEGS TO CUT	# OF SIDES TO CUT	AMOUNT PER SIDE	FINAL UPPER BUTT
	LEFT	RIGHT	LEFT	RIGHT									
N2-G10	+064	-006	+040	-072	+058	-032	+026	.103	.129		T 2 B 1	.055 ✓ .020 ✓	
N3-G1	+077	-133	+071	-145	+056	-074	+130	.101			T B		
N3-G2	+080	-067	+052	-078	+013	-026	-013	.101	.088		T 1 B 1	.060 ✓ .028 ✓	
N3-G3	+208	-199	+056	-059	+009	-003	+006	.113	.119		T 1 B 1	.060 ✓ .060 ✓	
N3-G4	+203	-167	+045	-084	+036	-039	-003	.119	.116		T 2 B	.058 ✓	
N3-G5	+067	-052	+038	-058	+015	-020	-005	.120	.115		T 1 B 1	.058 ✓ .058 ✓	
N3-G6	+111	-068	+156	-217	+043	-061	-018	.121	.103		T 2 B	.052 ✓	
14 T	+050	-041	+066	-095	+009	-029	-020	.131	.111		T 2 B 1	.038 ✓ .037 ✓	
13 T	+092	-094	+021	-018	-002	+003	+001	.141	.142		T 2 B 2	.035 ✓ .037 ✓	
12 T	+122	-080	+073	-072	+042	+001	+043	.012	.055		T 1 B 1	.048 ✓ .007 ✓	
11 T	+081	-057	+091	-032	+024	+039	+063	.012	.075		T 1 B 1	.030 ✓ .045 ✓	
10 T	+040	-032	+053	-032	+008	+021	+029	.012	.041		T 1 B 1	.014 ✓ .027 ✓	

CUSTOMER: \_\_\_\_\_ STATION: \_\_\_\_\_ UNIT: \_\_\_\_\_ DATE: \_\_\_\_\_ ENGINEER: \_\_\_\_\_

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DEWAS DELAYAL TURBOMACHINERY CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) PERFORM A CONTRACT WITH DEWAS DELAYAL TURBOMACHINERY CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. RECIPIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

OR BY LJC DATE 6/19/94 CHKO BY JJD DATE 6/19/95 PART NO. FLD002.DWG REV. 3

**TurboCare**

IP7\_005287

# BUTT & C SHEET

NOTE: 1. DO NOT CUT BY SEG WITH BRANDON  
2. UPPER & LOWER HALFS TO BE DONE SEPARATELY.  
3. CUT NO MORE THAN .100" PER SEG. (.050" PER SIDE)  
4. BUTT TOLERANCE +.000 - .030

(+)-CUT THAT AMOUNT  
(-)-BUTT TO LARGE CHECK TOL.

\* NEG. BUTTS  
WHEN THE SIGNS TO THE LEFT ARE BOTH NEG.  
1. IF DESIGN IS LARGER THAN AMOUNT  
CHECK TOLERANCE.  
2. IF AMOUNT IS LARGER THAN DESIGN SUBTRACT  
AND CHANGE SIGN TO PLUS.

WHEN THE SIGNS TO THE LEFT ARE  
DIFFERENT SUBTRACT AND USE  
THE SIGN OF THE LARGER NUMBER.  
-OR-  
WHEN THE SIGNS TO THE LEFT ARE  
THE SAME ADD AND USE THAT SIGN.  
\* EXCEPT WHEN DESIGN IS A NEG. NUM.

LOCATION	UPPER		LOWER		ADD ALL UPPER	ADD ALL LOWER	AMOUNT OF BUTT	* DESIGN BUTT GAP	AMOUNT TO CUT	# OF SEGS TO CUT	# OF SIDES TO CUT	AMOUNT PER SIDE	FINAL UPPER BUTT
9 T	+ .014	- .023	+ .056	- .122	+ .051	- .066	- .015	.012					
9 G	+ .109	- .082	+ .094	- .165	+ .025	- .071	- .046	.012					
10 G	+ .051	- .059	+ .049	- .017	- .008	+ .030	+ .022	.012	.034				
11 G	+ .100	- .035	+ .031	- .069	+ .065	- .038	+ .027	.012	.039			.034 ✓	
12 G	+ .104	- .123	+ .100	- .031	- .019	+ .069	+ .050	.012	.062			.031 ✓	
13 G	+ .061	- .063	+ .060	- .043	- .002	+ .017	+ .015	.141	.156			.035 ✓	
14 G	+ .087	- .083	+ .083	- .086	+ .004	- .003	+ .001	.131	.132			.044 ✓	
N4-G1	+ .152	- .171	+ .100	- .087	- .019	+ .013	- .006	.121	.115			.035 ✓	
N4-G2	+ .092	- .114	+ .071	- .068	- .022	+ .003	- .019	.120	.101			.032 ✓	
N4-G3	+ .087	- .132	+ .096	- .070	- .045	+ .026	- .019	.119	.100			.039 ✓	
N4-G4	+ .110	- .157	+ .124	- .113	- .047	+ .011	- .036	.118	.082			.038 ✓	
N4-G5	+ .106	- .101	+ .031	- .030	+ .005	+ .001	+ .006	.101	.107			.051 ✓	
												.050 ✓	

CUSTOMER: STATION: UNIT: DATE: ENGINEER:

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO TURBOCARE CORP. AND IS MADE AVAILABLE SOLELY TO THE (A) PERSON TO WHOM IT IS LOANED TO MAKE A PRO AS A POTENTIAL VENDOR, OR (B) PERSON A CONTRACT WITH TURBOCARE CORP. IT MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF TURBOCARE CORP.



# PACKING ●INGS

**CUSTOMER:** HP

UNIT: 2

DATE: 3-15-02

( HP IP LP )

**PLANT CONTACT:**

ENGINEER: *L. H. S.*

**CUSTOMER APPROVAL**

### After machining

[illegible]

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DEMUX DELAVAL TURBOCHARGER CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR

AB BY LGJ

DATE 11/20/94

**CHKD BY**

**JJK**

DATE 08/22/96

**PART NO.**

FLD0007.DWG

**REV.**

4

# Turbocare.

**NOTE: 1. DO NOT CUT END**

1. DO NOT CUT END WITH BRANDON HOLE.
2. UPPER & LOWER HALFS TO BE DONE SEPARATELY.
3. CUT NO MORE THAN .100" PER SEG. (.050" PER SIDE)
4. BUTT TOLERANCE +.000  
-.030

(+)=CUT THAT AMOUNT  
(-)=BUY TO LARGE CH

• NEG. BUTTS

WHEN THE SIGNS TO THE LEFT ARE BOTH NEG.

1. IF DESIGN IS LARGER THAN AMOUNT CHECK TOLERANCE.
2. IF AMOUNT IS LARGER THAN DESIGN SUBTRACT AND CHANGE SIGN TO PLUS.

## After Machining

WHEN THE SIGNS TO THE LEFT ARE  
DIFFERENT SUBTRACT AND USE  
THE SIGN OF THE LARGER NUMBER.

**WHEN THE SIGNS TO THE LEFT ARE THE SAME ADD AND USE THAT SIGN.**

EXCEPT WHEN DESIGN IS A NEG. NUM.

[illegible]

CUSTOMER: STATION: UNIT: DATE: ENGINEER:

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DELTA DELAVAL TURBOCHARGER COOP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) FULFILL A CONTRACT WITH DELTA DELAVAL TURBOCHARGER COOP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY IF REQUESTED. RECEIPT WILL TAKE ALL RESPONSIBLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

DR BY	LJG	DATE	6/19/94	CHKD BY	JJD	DATE	6/19/95	PART NO.	FLO002.DWG	REV.	3
-------	-----	------	---------	---------	-----	------	---------	----------	------------	------	---

# Turbocare.

**IP7 005291**

## Field Service Form

**TurboCare®****END SLOT SHEET**

\* The total average per side plus .062" plus ¼ total butt equals the hang down at the horizontal joint.

Customer: \_\_\_\_\_ Date: \_\_\_\_\_

Station: \_\_\_\_\_ Engineer: \_\_\_\_\_ Unit: \_\_\_\_\_

LOCATION	UPPER BUTT		TOTAL UPPER BUTT	TOTAL AVG. PER SIDE	1/4 BUTT	DEPTH OF KEEPER		PLUS .062	AMOUNT TO CUT	
	Left	Right				Left ④	Right ④		Left ④	Right ④
14 G				033	033	.539		.062	.601	
				↓	↓		.539	.062		.601
13 G				036	036	.543		.062	.605	
				↓			.543	.062		.605
12 G				010	003	.538		.062	.593	
				↓	↓		.538	.062		.593
11 G				013	003	.532		.062	.610	
				013	003		.532	.062		.610
10 G				004		.534		.062	.595	
				↓	↓		.534	.062		.595
9 G				013		.535		.062	.613	
				↓	↓		.535	.062		.613
								.062		

Description:

FLD004 - End Slot Sheet

Document No.:

FLD004.DOC

Rev. 4

Date: 01/14/02

Page No.:

1 of 1

## Field Service Form

## END SLOT SHEET

\* The total average per side plus .062" plus ¼ total butt equals the hang down at the horizontal joint.

Customer: \_\_\_\_\_ Date: \_\_\_\_\_

Station: \_\_\_\_\_ Engineer: \_\_\_\_\_ Unit: \_\_\_\_\_

LOCATION	UPPER BUTT		TOTAL UPPER BUTT	TOTAL AVG. PER SIDE	1/4 BUTT	DEPTH OF KEEPER		PLUS .062	AMOUNT TO CUT	
	Left	Right				Left (4)	Right (1)		Left (4)	Right (1)
14 T				±033	.033	.536		.062	.598	
				±033	.033	.536		.062		.598
13 T				±036	.036	.535		.062	.597	
				±036	.036	.535		.062		.597
12 T				±003	.003	.537		.062	.599	
				±003		.533		.062		.595
11 T				±003		.542		.062	.604	
				±003		.542		.062		.604
10 T				±003		.545		.062	.607	
				±003		.556		.062		.618
9 T				±026		.544		.062	.632	
				±026		.544		.062		.632
								.062		

Description:

FLD004 - End Slot Sheet

Document No.:  
FLD004.DOCRev. 4  
Date: 01/14/02Page No.:  
1 of 1

## Field Service Form

**TurboCare®****END SLOT SHEET**

\* The total average per side plus .062" plus ¼ total butt equals the hang down at the horizontal joint.

Customer: \_\_\_\_\_ Date: \_\_\_\_\_

Station: \_\_\_\_\_ Engineer: \_\_\_\_\_ Unit: \_\_\_\_\_

LOCATION	UPPER BUTT		TOTAL UPPER BUTT	TOTAL AVG. PER SIDE	1/4 BUTT	DEPTH OF KEEPER		PLUS .062	AMOUNT TO CUT	
	Left	Right				Left ④	Right ④		Left ④	Right ④
N1-G4				.028	.028	.560		.062	.622	
				↓	↓		.560	.062		.622
N1-G5				.029	.029	.573		.062	.635	
				↓	↓		.573	.062		.635
N1-G6				.030	.030	.571		.062	.633	
				↓	↓		.571	.062		.633
N1-G7				.031	.031	.557		.062	.619	
				↓	↓		.557	.062		.619
N2-G6				.003	.003	.550		.062	.612	
				↓	↓		.550	.062		.612
N2-G7						.550		.062	.612	
							.550	.062		.612
								.062		

Description:

FLD004 - End Slot Sheet

Document No.:

FLD004.DOC

Rev. 4

Date: 01/14/02

Page No.:

1 of 1

SPILL STRIPS

**CUSTOMER:**

UNIT:

**DATE:**

(HP 19 LP)

**PLANT CONTACT:**

## ENGINEER:

**CUSTOMER APPROVAL**

[illegible][illegible]

DR BY LJC

DATE 11/20/94

СНКО ВУ

QJR

DATE \_\_\_\_\_

6/23/95

PART NO.

**FLO008.DWG**

**REV.**

1

[illegible]

CUSTOMER: Intermountain Power UNIT: Delta #2 DATE: 3-9-02

CUSTOMER: Intermountain Power

UNIT: Delta #2

DATE: 3-9-02

(HP 10 LP)

PLANT CONTACT: Dave Spence

ENGINEER: T. Hug

**CUSTOMER APPROVAL**

[illegible]

THESE DOCUMENT CONTAINS THE INFORMATION IT CONTAINS IS CONFIDENTIAL AND PROPRIETARY TO BEHAVIORAL NEUROSCIENCE CORP. AND IS MADE AVAILABLE SOLELY TO (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) PURSUE A CONTRACT WITH BEHAVIORAL NEUROSCIENCE CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. NEUROSCIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

DR BY L.JG

DATE 11/20/94	CHKD BY
---------------	---------

10

**DATE** 6/23/95

**PART NO.**

FLD008.DWG

**REV.**

1

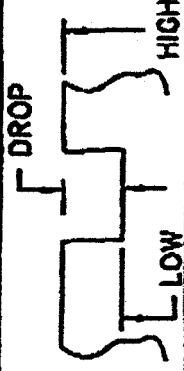
# Turbocare.

# ROTOR DIAMETER DATA

CUSTOMER: Intermountain Pb STATION: Delta UNIT NO.: 2

O.E.M.: GE UNIT RATING: 3-11-02

ELEMENT: HP (IP) LP CODE TYPE: ENGINEER: T. Hug



## ROTOR DIAMETER:

LOCATION	DROP	MEASURED DIAMETER	MEASURED (LO) / HI	DESIGN	# OF (LO) LANDS
N3-G1	.125	20.731			6
N3-G2	.128	20.740			6
N3-G3	.125	24.750			6
N3-G4	.125	24.750			6
N3-G5	.126	24.750			6
N3-G6	.125	24.750			6
14 T	.125	24.754			2
13 T	.125	24.750			2
12 T	.126	24.751			3
11 T	.126	24.750			2
10 T	.125	24.750			3
9 T	.125	24.750			4
8 T	.129	24.707			2
8 G	.127	24.709			2
9 G	.127	24.750			2
10 G	.128	24.750			2

REMARKS:

medium rubs

minor rubs

THIS DOCUMENT CONTAINS NO INFORMATION OF IMPORTANCE TO NATIONAL DEFENSE AND IS NOT TO BE DISTRIBUTED OUTSIDE THE GOVERNMENT OR TO ANY OTHER PERSON OR ORGANIZATION WITHOUT THE WRITTEN AUTHORIZATION OF THE GOVERNMENT. IT IS THE PROPERTY OF THE GOVERNMENT AND IS LOANED TO YOUR AGENCY FOR YOUR INFORMATION AND USE ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM THE GOVERNMENT. TURBOCARE

DR BY L.J.G. DATE 7/12/94 CHKD BY JJD DATE 6/19/95 PART NO. FLD014.DWG REV. 1

TURBOCARE


IP7\_005297

APR 13 1999 9:39AM TURBOCARE CHICPEE

NO. 2123 P. 2/2

# ROTOR DIAMETER DATA

CUSTOMER: \_\_\_\_\_ STATION: \_\_\_\_\_ UNIT NO.: \_\_\_\_\_  
O.E.M.: \_\_\_\_\_ UNIT RATING: \_\_\_\_\_ DATE: \_\_\_\_\_  
ELEMENT: HP (IP) LP. \_\_\_\_\_ CODE TYPE: \_\_\_\_\_ ENGINEER: \_\_\_\_\_



[illegible]

THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE. DATE 08-21-2001 BY 60322 UCBAW/STP

DR DY	LJG	DATE 7/12/94	CHKD BY JJD	DATE 6/19/95	PART NO.	FLO014.DWG	REV. 1
-------	-----	--------------	-------------	--------------	----------	------------	--------

# କେନ୍ଦ୍ରୀୟ ସ୍ୱାସ୍ଥ୍ୟ

**FIELD DISTORTION ANALYSIS**
**TurboCare** A DIVISION OF DEMAG DELAVAL TURBOMACHINERY CORP.

 CUSTOMER: INTERMOUNTAIN POWER

 STATION: DELTA

 UNIT #: 2

 UNITS DISPLAYED: ENGLISH

 BOWED  
IN

 (+)  
DOWNWENT

 O.E.M.: GE

SERIAL NO.:

 DATE: 3/1/2002

 ENGINEER: T. HUG

CODE TYPE:

**DISTORTION  
SUMMARY**

LOCATION	MEASURED HOR. DIAMETER				--- CALCULATED ---		HORIZ. vs. VERT			Up/Downstr. (lwr)			Up/Downstr. (up)		
	LOWER HALF		UPPER HALF		Horizontal DIA (ave.)	VERTICAL DIAMETER	NONE <0.005	MINOR <spec	MAJOR >spec	NONE <0.005	MINOR <0.020	MAJOR >0.020	NONE <0.005	MINOR <0.020	MAJOR >0.020
	Upstream	Downstream	Upstream	Downstream											
N1 G1	22.500	22.500	22.506	22.504	22.503	22.499	0.004		0.004				0.002		
N1 G2	22.500	22.500	22.504	22.500	22.501	22.499	0.002		0.002				0.004		
N1 G3	26.257	26.255	26.256	26.254	26.256	26.246			0.009	0.002			0.002		
N1 G4	26.255	26.254	26.253	26.255	26.254	26.243		0.011		0.001			0.002		
								0.030 -SPEC.							
N1 G5	26.255	26.253	26.254	26.254	26.254	26.249	0.005			0.002					
								0.030 -SPEC.							
N1 G6	26.250	26.253	26.250	26.250	26.251	26.247	0.004			0.005					
								0.030 -SPEC.							
N1 G7	26.252	26.251	26.250	26.250	26.251	26.248	0.003			0.001					
								0.030 -SPEC.							
N2 G5	30.450	30.456	30.487	30.487	30.470	30.483			0.013	0.006					
N2 G6	30.461	30.469	30.487	30.488	30.476	30.490		0.014		0.008			0.001		
								0.030 -SPEC.							
N2 G7	30.469	30.469	30.498	30.504	30.485	30.501		0.016					0.006		
								0.030 -SPEC.							
N2 G8	30.476	30.470	30.498	30.496	30.485	30.503			0.018	0.006			0.002		
N2 G9	25.484	25.482	25.497	25.493	25.489	25.506			0.017	0.002			0.004		
N2 G10	25.485	25.485	25.496	25.500	25.492	25.503			0.012				0.004		
N3 G1	23.489	23.489	23.495	23.502	23.494	23.504			0.010				0.007		
N3 G2	23.500	23.500	23.500	23.504	23.501	23.505	0.004		0.004				0.004		

# FIELD DISTORTION ANALYSIS

**TurboCare**

A DIVISION OF DEMAG DELAVAL TURBOMACHINERY CORP.

CUSTOMER: INTERMOUNTAIN POWER

STATION: DELTA

UNIT #: 2

UNITS DISPLAYED: ENGLISH

BOWED

IN

O.E.M.: GE

SERIAL NO.:

DATE: 3/7/2002

RETURN CUT

ENGINEER: I. HUG

CODE TYPE:

DATE: 3/7/2002

DISTORTION SUMMARY

LOCATION	MEASURED HOR. DIAMETER				CALCULATED		HORIZ. VS. VERT		UpDistort. (in)		UpDistort. (in)	
	Lower Half Upstream	Lower Half Downstream	Upper Half Upstream	Upper Half Downstream	Horizontal DIA (ave.)	Vertical DIAMETER	NONE <0.005	MINOR <SPEC	MAJOR >SPEC	NONE <0.005	MINOR <0.020	MAJOR >0.020
N3	27.500	27.500	27.505	27.502	27.502	27.501	0.001	0.030 =SPEC.		0.003		
G3												
N3	27.500	27.500	27.500	27.504	27.501	27.501	0.000	0.030 =SPEC.		0.004		
G4												
N3	27.500	27.500	27.501	27.504	27.501	27.497	0.004	0.030 =SPEC.		0.003		
G5												
N3	27.500	27.500	27.500	27.501	27.500	27.494		0.006		0.001		
G6												
STA	27.516	27.518	27.518	27.520	27.518	27.500		0.018		0.002		
11TE								0.030 =SPEC.				
STA	27.498	27.498	27.512	27.508	27.504	27.499		0.005		0.004		
13TE								0.030 =SPEC.				
STA	27.500	27.501	27.500	27.500	27.500	27.501	0.001	0.030 =SPEC.				
12TE								0.030 =SPEC.				
STA	27.500	27.500	27.505	27.510	27.504	27.495		0.009				0.005
11TE								0.030 =SPEC.				
STA	27.500	27.500	27.506	27.506	27.503	27.497		0.006				
10TE								0.030 =SPEC.				
STA	27.506	27.514	27.502	27.520	27.511	27.495		0.015	0.008			0.018
9TE								0.030 =SPEC.				
STA	27.500	27.512	27.506	27.515	27.508	27.485		0.023	0.007			0.009
9GE								0.030 =SPEC.				
STA	27.495	27.500	27.500	27.504	27.500	27.487		0.013		0.003		0.004
10GE								0.030 =SPEC.				
STA	27.500	27.504	27.509	27.510	27.506	27.495		0.011		0.004		0.001
11GE								0.030 =SPEC.				
STA	27.500	27.496	27.504	27.500	27.500	27.499	0.001	0.030 =SPEC.		0.004		0.004
12GE								0.030 =SPEC.				
STA	27.497	27.493	27.500	27.498	27.497	27.498	0.001	0.030 =SPEC.		0.004		0.002
13GE								0.030 =SPEC.				
STA	27.497	27.499	27.500	27.503	27.500	27.499	0.001	0.030 =SPEC.		0.002		0.003
14GE								0.030 =SPEC.				

IP7\_005300

# FIELD DISTORTION ANALYSIS

**TurboCare**

A DIVISION OF DEMAG DELAVAL TURBOMACHINERY CORP.

CUSTOMER: INTERMOUNTAIN POWER

STATION: DELTA

UNIT #: 2

UNITS DISPLAYED: ENGLISH

BOWED

IN

O.E.M.: GE

SERIAL NO.:

DATE: 3/7/2002

REWORK OUT

ENGINEER: T.HUG

CODE TYPE:

## DISTORTION SUMMARY

LOCATION	MEASURED HOR. DIAMETER				CALCULATED		HORIZ. vs. VERT.			Up/Downstr. (hrs)		
	UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM	HORIZONTAL DIA (ave.)	VERTICAL DIAMETER	NONE <0.003	MINOR <SPEC	MAJOR >SPEC	NONE <0.003	MINOR <0.020	MAJOR >0.020
N4 G1	27.496	27.497	27.500	27.500	27.498	27.500	0.002	0.030 =SPEC.		0.001		
N4 G2	27.496	27.496	27.500	27.500	27.498	27.504		0.006				
N4 G3	27.504	27.498	27.498	27.503	27.501	27.504	0.003	0.030 =SPEC.		0.006	0.005	
N4 G4	27.498	27.498	27.502	27.505	27.501	27.509		0.008			0.003	
N4 G5	23.499	23.499	23.500	23.502	23.500	23.501	0.001	0.030 =SPEC.	0.001		0.002	
N4 G6	23.491	23.493	23.490	23.498	23.493	23.503		0.010		0.002	0.008	

IP7\_005301

# SPILL STRIPS

CUSTOMER: Intermountain Power UNIT: Delta #2 DATE: 3-9-02

( HP ☒ IP ☐ LP ) PLANT CONTACT: Dave Spence ENGINEER: T. Hug

CUSTOMER APPROVAL \_\_\_\_\_

LOCATION	TOOTH TIP BORE DIA. (UPPER)	TOOTH TIP BORE DIA. (LOWER)	TOOTH TIP BORE AVG.	BUCKET DIA.	TOTAL CLR.	RADIAL CLR.	DESIGN RADIAL CLEARANCE	NOTES	APPD. BY
14 T	62.961	62.957		62.874	.083	.042	.045	clrs. based on lower	
13 T	59.300	59.289		59.209	.080	.040	.045	half, upper half is bigger.	
12 T	56.801	56.799		56.725	.074	.037	.045		
11 T	55.039	55.030		54.968	.062	.031	.035		
10 T 2	53.075	53.068		53.003	.065	.033	.035		
10 T 1	53.072	53.065		52.995	.070	.035	.035		
9 T 2	51.426	51.423		51.351	.072	.036	.035		
9 T 1	51.425	51.418		51.324	.094	.047	.035		
9 G 1	51.418	51.416		51.319	.097	.048	.035		
9 G 2	51.435	51.434		51.321	.113	.056	.035		
10 G 1	53.071	53.069		53.000	.069	.035	.035		
10 G 2	53.061	53.060		53.000	.060	.030	.035		
11 G	55.031	55.027		54.962	.065	.033	.035		
12 G	56.808	56.802		56.726	.076	.038	.045		
13 G	59.297	59.290		59.207	.083	.042	.045		
14 G	62.958	62.948		62.870	.078	.039	.045		

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DEWAS DELAVAL TURBOMACHINERY CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) PERFORM A CONTRACT WITH DEWAS DELAVAL TURBOMACHINERY CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. RECIPIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

DR BY LJC DATE 11/20/94 CHKD BY JJD DATE 6/23/95 PART NO. FLD008.DWG REV. 1

**TurboCare**

IP7\_005302

# SPILL STRIPS

DATE:

UNIT:

**CUSTOMER:**

**ENGINEER:**

**PLANT CONTACT:**

( ५३५ )

 $x + 20 \text{ miles}$ 

**CUSTOMER APPROVAL**

[illegible][illegible]

**Thank a Cop.**

**REV.**

FI 0008.DWG

**PART NO.**

DATE 6/23/95

10

AB

194

DATE

5

BY

# PACKING BOX & DIAPHRAGM HOOK DIAMETERS

CUSTOMER: Intermountain Power STATION: Delta UNIT NO.: 2

O.E.M.: GE SERIAL NO.: \_\_\_\_\_ DATE: 3-7-02

ELEMENT: (HP) IP LP \_\_\_\_\_ ENGINEER: T. Hug

LOCATION	LOWER HALF						UPPER HALF					
	HORIZONTAL DIAMETER			HOOK FOOT		VERTICAL RADIUS	HORIZONTAL DIAMETER			HOOK FOOT		VERTICAL RADIUS
	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.		UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.	
N1-G1	22.500	22.500	22.500	.375	.375	10.860	22.506	22.504	22.505	.375	.375	10.889
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 22.499				
N1-G2	22.500	22.500	22.500	.375	.375	10.862	22.504	22.500	22.502	.375	.375	10.887
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 22.499				
N1-G3	26.257	26.255	26.256	.375	.375	12.741	26.256	26.254	26.255	.375	.375	12.755
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 26.246				
N1-G4	26.255	26.254	26.254	.375	.375	12.742	26.253	26.255	26.254	.375	.375	12.757
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 26.249				
N1-G5	26.255	26.253	26.254	.375	.375	12.742	26.254	26.254	26.254	.375	.375	12.757
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 26.249				
N1-G6	26.250	26.255	26.253	.375	.375	12.741	26.250	26.250	26.250	.375	.375	12.756
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 26.247				
N1-G7	26.252	26.251	26.252	.375	.375	12.740	26.250	26.250	26.250	.375	.375	12.758
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 26.248				
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input type="checkbox"/> VERTICAL DIA.: _____				

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO GEORGIA DELAVAL TURBOCHARGERY CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) FULFILL A CONTRACT MADE BY GEORGIA DELAVAL TURBOCHARGERY CORP. IT MAY NOT BE REPRODUCED BY COPIES AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. RECIPIENT WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

R BY LJG DATE 3/21/95 CHKD BY JJD DATE 8/19/95 PART NO. FLD009.DWG REV. 0 **TurboCare**

IP7\_005304

(2)

# PACKING BOX & DIAPHRAGM HOOK DIAMETERS

CUSTOMER: \_\_\_\_\_ STATION: \_\_\_\_\_ UNIT NO.: \_\_\_\_\_  
O.E.M.: \_\_\_\_\_ SERIAL NO.: \_\_\_\_\_ DATE: \_\_\_\_\_  
ELEMENT: (HP) IP LP \_\_\_\_\_ ENGINEER: \_\_\_\_\_

LOCATION	LOWER HALF						UPPER HALF					
	HORIZONTAL DIAMETER			HOOK FOOT			HORIZONTAL DIAMETER			HOOK FOOT		
	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.	VERTICAL RADIUS	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.	VERTICAL RADIUS
12-6-5	30.450	30.456	30.453	.374	.375	14.860	30.487	30.487	30.487	.375	.375	14.873
NOTE: _____												
12-6-6	30.461	30.469	30.465	.374	.374	14.865	30.481	30.488	30.488	.375	.375	14.876
NOTE: _____												
12-6-7	30.469	30.469	30.469	.374	.374	14.874	30.498	30.504	30.501	.375	.375	14.878
NOTE: _____												
12-6-8	30.476	30.470	30.478	.375	.375	14.875	30.498	30.496	30.497	.375	.375	14.878
NOTE: _____												
12-6-9	25.484	25.482	25.483	.375	.375	12.387	25.497	25.493	25.495	.375	.375	12.369
NOTE: _____												
12-6-10	25.485	25.488	25.485	.375	.375	12.383	25.496	25.500	25.498	.375	.375	12.370
NOTE: _____												
NOTE: _____												
NOTE: _____												

BY LUG DATE 3/21/95 CHKD BY JJD DATE 6/19/95 PART NO. FLO009.DWG REV. 0

TurboCare

# PACKING BOX & DIAPHRAGM HOOK DIAMETERS

CUSTOMER: \_\_\_\_\_ STATION: \_\_\_\_\_ UNIT NO.: \_\_\_\_\_

O.E.M.: \_\_\_\_\_ SERIAL NO.: \_\_\_\_\_ DATE: \_\_\_\_\_

ELEMENT: HP (P) LP \_\_\_\_\_ ENGINEER: \_\_\_\_\_

LOCATION	LOWER HALF					UPPER HALF				
	HORIZONTAL DIAMETER			HOOK FOOT		HORIZONTAL DIAMETER			HOOK FOOT	
	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.
N3-G-1	23.489	23.489	23.489	375	.375	11.388	23.495	23.502	23.498	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 23.504			
N3-G-2	23.500	23.500	23.500	375	.375	11.388	23.500	23.504	23.502	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 23.505			
N3-G-3	27.500	27.500	27.500	375	.375	13.381	27.505	27.502	27.503	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.501			
N3-G-4	27.500	27.500	27.500	375	.375	13.382	27.500	27.504	27.502	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.501			
N3-G-5	27.500	27.500	27.500	375	.375	13.382	27.501	27.504	27.502	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.497			
N3-G-6	27.500	27.500	27.500	375	.375	13.382	27.500	27.501	27.500	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.494			
14 TE	27.516	27.518	27.517	375	.375	13.383	27.518	27.520	27.519	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.500			
13 TE	27.498	27.498	27.498	373	.373	13.368	27.518	27.508	27.510	.375
	NOTE: _____						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.499			

THIS DOCUMENT (INCLUDING ALL CONTENTS) IS CONFIDENTIAL AND PROPRIETARY TO BOWEN & BARRETT, INC. AND IS MADE AVAILABLE SOLELY TO THE CUSTOMER FOR THE PURPOSES OF THE CONTRACT. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF BOWEN & BARRETT, INC.

DR BY LJO DATE 3/21/95 CHKD BY JJD DATE 6/19/95 PART NO. FLD009.DWG REV. 0

TurboCare

# PACKING BOX & DIAPHRAGM HOOK DIAMETERS

CUSTOMER: \_\_\_\_\_ STATION: \_\_\_\_\_ UNIT NO.: \_\_\_\_\_

O.E.M.: \_\_\_\_\_ SERIAL NO.: \_\_\_\_\_ DATE: \_\_\_\_\_

ELEMENT: HP IP LP \_\_\_\_\_ ENGINEER: \_\_\_\_\_

LOCATION	LOWER HALF						UPPER HALF					
	HORIZONTAL DIAMETER			HOOK FOOT		VERTICAL RADIUS	HORIZONTAL DIAMETER			HOOK FOOT		VERTICAL RADIUS
	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.		UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.	
12 TE	27.500	27.501	27.500	.372	.372	13.387	27.500	27.500	27.500	.375	.375	13.367
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.501				
11 TE	27.500	27.500	27.500	.368	.369	13.363	27.505	27.510	27.507	.375	.375	13.388
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.495				
10 TE	27.500	27.500	27.500	.372	.371	13.377	27.506	27.506	27.506	.376	.375	13.374
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.497				
9 TE	27.506	27.514	27.510	.370	.370	13.385	27.502	27.520	27.5	.376	.376	13.364
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.495				
9 GE	27.500	27.512	27.506	.365	.372	13.394	27.506	27.515	27.510	.372	.373	13.356
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.495				
10 GE	27.495	27.500	27.498	.366	.372	13.367	27.500	27.504	27.502	.367	.372	13.376
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.487				
11 GE	27.500	27.504	27.502	.369	.371	13.400	27.509	27.510	27.509	.372	.372	13.352
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.495				
12 GE	27.500	27.496	27.498	.373	.374	13.365	27.504	27.500	27.502	.373	.373	13.387
	NOTE: _____						PIN: <input type="checkbox"/>	KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.499				

THIS DOCUMENT (INCLUDING THE INFORMATION IT CONTAINS) IS CONFIDENTIAL AND PROPRIETARY TO DONALD DELAVALL TURBOCHARGER CORP. AND IS MADE AVAILABLE SOLELY TO: (A) RESPOND TO AN INQUIRY TO MAKE A BID AS A POTENTIAL VENDOR, OR (B) FURNISH A CONTRACT AND/or DELIVER TURBOCHARGER CORP. IT MAY NOT BE REPRODUCED OR COPIED AND SHALL BE RETURNED IMMEDIATELY ON REQUEST. REQUESTOR WILL TAKE ALL REASONABLE STEPS TO PROTECT THIS DOCUMENT AND THE INFORMATION IT CONTAINS.

BY LJC DATE 3/21/95 CDRD BY JJD DATE 8/19/95 PART NO. FLD009.DWG REV. 0 **TurboCare**

IP7\_005307

5

# PACKING BOX & DIAPHRAGM HOOK DIAMETERS

CUSTOMER: \_\_\_\_\_ STATION: \_\_\_\_\_ UNIT NO.: \_\_\_\_\_  
O.E.M.: \_\_\_\_\_ SERIAL NO.: \_\_\_\_\_ DATE: \_\_\_\_\_  
ELEMENT: HP IP LP \_\_\_\_\_ ENGINEER: \_\_\_\_\_

LOCATION	LOWER HALF						UPPER HALF					
	HORIZONTAL DIAMETER			HOOK FOOT			HORIZONTAL DIAMETER			HOOK FOOT		
	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.	VERTICAL RADIUS	UP STREAM	DOWN STREAM	AVG. DIAMETER	AVG. HORIZ.	VERT.	VERTICAL RADIUS
13 GE	27.497	27.493	27.495	.373	.374	13.369	27.500	27.498	27.499	.375	.375	13.380
	NOTE: H 13.37						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.498					
14 GE	27.497	27.499	27.498	.375	.374	13.381	27.500	27.503	27.501	.375	.375	13.369
	NOTE:						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.499					
N4-G1	27.496	27.497	27.497	.375	.375	13.378	27.500	27.500	27.500	.375	.375	13.372
	NOTE:						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.500					
N4-G2	27.496	27.496	27.496	.375	.375	13.381	27.500	27.500	27.500	.375	.375	13.373
	NOTE:						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.504					
N4-G3	27.504	27.498	27.501	.375	.375	13.381	27.495	27.503	27.499	.375	.375	13.373
	NOTE:						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.504					
N4-G4	27.498	27.498	27.498	.375	.375	13.380	27.502	27.505	27.503	.375	.375	13.379
	NOTE:						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 27.509					
N4-G5	23.499	23.499	23.499	.375	.375	11.380	23.500	23.502	23.501	.375	.375	11.371
	NOTE:						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 23.501					
N4-G6	23.491	23.493	23.492	.373	.373	11.370	23.490	23.498	23.494	.375	.375	11.385
	NOTE:						PIN: <input type="checkbox"/> KEEPER: <input checked="" type="checkbox"/> VERTICAL DIA.: 23.503					

THIS DOCUMENT (INCLUDING ITS CONTENTS) IS CONFIDENTIAL AND PROPRIETARY TO TURBOBOILER CORP. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF TURBOBOILER CORP. IN WITNESS WHEREOF, THE PRESIDENT OF TURBOBOILER CORP. HAS HEREBY SET HIS HAND AND SEAL AT NEW YORK, NEW YORK, ON \_\_\_\_\_.

BY: LJC DATE 3/21/95 CHKD BY JJD DATE 6/19/95 PART NO. FL0009.DWG REV. 0

TURBOBOILER

## INTERMOUNTAIN POWER SERVICE CORPORATION

Page 1 Of 1Date 02/14/02Rev. No. 1

## CONSTRUCTION QUALITY PLAN AND VERIFICATION REPORT

Project No. <u>IGS01-17</u> Project Description <u>Variable Clearance Packing for IP Turbine Sections</u>					
Project Designer <u>David Spence</u> Project Constructor <u>TurboCare Inc.</u> Q/A Coordinator <u>David Spence</u>					
Item No.	Job Component	Responsible Inspector	References	Special Instructions	Verifier Initials & Date
1	Measure rotor diameters at packing fit locations.	D. Spence G. Christensen		Measurements at three locations.	
2	Measure and evaluate hook-fit dimensions on steam packing holders to identify distortion.	D. Spence G. Christensen		Evaluate to determine roundness of fits and need for additional machining to fit packing ring segments.	
3	Verify steam packing and spill strip dimensions with Contractor for proper fit.	D. Spence	Project detailed specs.	Verify packing ring segments and spill strips will fit properly	
4	Verify proper segment butt clearances after machining.	D. Spence	OEM specs.	OEM should provide field drawings and lists for verification.	
5	Measure and verify closing clearances.	D. Spence G. Christensen	QA/QC Man.	Measure radial clearances with packing in the closed position. Measure tooth heights at 8 locations per steam path audit requirements.	
6	Verify packing retaining pins are installed and staked in each fit.	D. Spence P. Do	QA/QC Man.	Inspection performed just prior to setting upper half diaphragms and packing boxes.	
7	Pre and post-outage IP enthalpy drop efficiency tests to verify performance guarantees.	D. Spence G. Christensen	Project detailed specs.	Use test results and steam path audit calculations to determine the effect of retractable interstage packings and reduced clearance spill strips.	

IP7\_005309

## **10. Procurement**

- Bill of materials
- Material specifications
- Contracts
- Purchase requisition and orders
- Bid analysis
- Change orders
- Service agreement
- Invoices

T R A N S M I T T A L

IPP



INTERMOUNTAIN POWER SERVICE CORPORATION

ADDRESS: 850 W. Brush Wellman Rd., Delta, UT 84624

CONFIRMATION: (435) 864-4414 Ext. 6577

FACSIMILE: (435) 864-6670

TO

Company: TurboCare

Attention: Robert Hogan

Facsimile: (413) 593-3424

FROM

Name: David Spence

Department: Technical Services

Phone: (435) 864-6449

Date: April 24, 2003

Pages to follow: 4

**Comments:**

Please review invoices for PO 02-22354  
Intermountain Generating Station Unit 1 IP retractable packing purchase  
and installation.

DS

Approval

4-24-03/ml  
Date/Time Sent

3:10

IP7\_005311

4/24/03

Bob,

Kathy - Turbocare - Accounting  
413-593-0550 x327

Please review these invoices for  
P.O. 02-22354. They don't make any  
sense based on last year's invoices and the  
terms of purchase order.

inv. # 108335 - this is ok completes payment  
for agreed price of \$179,340<sup>00</sup>

inv. # 108345 - should be charged to

changed  
6/24/03  
to  
PO 03-30522  
P.O. 03-30522. This is for extra work  
to install non-turbocare packing. Extra  
work and consumable charges are ok. why  
is travel & living charge added?

inv. # 108346 - why are we being charged for  
this? These costs should be covered under  
original purchase agreement & inv # 108335

voiced  
6/24/03  
or Kathy  
@  
Turbocare  
Please resolve these issues & ref to last year's  
invoices - David Spence, IPSC

IP7\_005312

# TurboCare®

2140 Westover Road - Chicopee, MA 01022-1057 Tel. (413) 593-0500 Fax (413) 593-3424

**PLEASE REMIT TO:**

TurboCare  
P. O. Box 640848  
Pittsburgh, PA 15264-0848

Invoice: **108346**

Page: **1**

Date: **4/11/2003**

**INVOICE**

**Bill To:**

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

**Ship To:**

INTERMOUNTAIN POWER SERVICE CORP  
Intermountain Generating Station  
850 West Brush Wellman Road  
Delta UT 84624  
USA

PO Number: **03-30522** *OK*  
Sales Rep: **Process Engineered Systems**  
Packing Slip: **22874**

Terms: **Net 30**  
SO #: **15772**

F.O.B: **EX-WORKS**  
Ship Via: **N/A**  
Ship Date: **4/11/2003**

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
1.00EA	INSTALLATION		5,310.00000EA	5,310.00
	INSTALLATION			

Qty. Ordered: **1.00**

Our Part: **INSTALLATION**

1.00EA LOT CHARGE  
TRAVEL & LIVING

*Advice PO  
Reg = 11000.00*

2,301.22000EA 2,301.22

Qty. Ordered: **1.00**

Our Part: **LOT CHARGE**

LABOR COST 5,310.00  
TRAVEL & LINING 386.22  
MACHINE RENTAL 1,800.00  
CONSUMABLES 115.00  
COPIES OF EXPENSES ATTACHED

**GOODS OR SERVICE ACCEPTED BY:**

**MALLARD COUNTY**  
**Miscellaneous Charges**

**Description**

Utah sales Tax 5.75% 437.64  
Trucking Charges 2,924.45

**Payment Schedule**

**Due Date**  
**5/11/2003**

A late charge of one and one-half percent (1 1/2%) per month, but not in excess of the lawful maximum, will be imposed on all payments received after the due date.

Total: **10,973.31** *sw*

**RECEIVED**  
**APR 15 2003**

**IPSC ACCOUNTING**

Contact Dave Spence x6449

*not a service contract*  
VENDOR # **3001** REMIT TO # \_\_\_\_\_

VOUCHER # \_\_\_\_\_

AMT PAID \$ **10973.31**  
**03-212H** **DUEDATE 11**

CL 00-ITGX-503  
WO 03-87051-2

**IP7\_005313**

# TurboCare®

2140 Westover Road - Chicopee, MA 01022-1057 Tel. (413) 593-0500 Fax (413) 593-3424

PLEASE REMIT TO:  
TurboCare  
P. O. Box 640848  
Pittsburgh, PA 15264-0848

Invoice: 108335  
Page: 1  
Date: 4/10/2003

## INVOICE

**Bill To:**

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

**Ship To:**

GOODS OR SERVICE ACCEPTED BY :  
\_\_\_\_\_

PO Number: 02-22354  
Sales Rep: Process Engineered Systems  
Packing Slip:

Terms: Net 30  
SO #: 15087

F.O.B:  
Ship Via:  
Ship Date:

IP TURBINE UNIT 1

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
0.00	IP TURBINE UNIT 1 PARTIAL BILLING LINE 2 LABOR FOR INSTALLATION OF CONVENTINAL PACKING RETRACTABLE PACKING COATED SPILL STRIPS Miscellaneous Charges		0.00000	34,000.00
	<u>Description</u> Utah sales Tax 5.75%			1,955.00

Payment Schedule Due Date  
5/10/2003

A late charge of one and one-half percent (1 1/2%) per month, but not in excess of the lawful maximum, will be imposed on all payments received after the due date.

Total: 35,955.00

PO for 179,340.00

PA 145,340.00 on 2/6/3

POA added 10,734 for inv 106864

APPROVED FOR PAYMENT

AUTHORIZED SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

RECEIVED  
APR 15 2003

IPSC ACCOUNTING

Not a Service Contract

VENDOR # 3001 REMIT TO # \_\_\_\_\_

VOUCHER # \_\_\_\_\_

AMT PAID \$ 35,955.00

Pay No. 03-212-H DUE DATE 1/1

GL 66 276X-502

W0 00-07718-0

Rn

See Dave Spruce 26449  
x 6626

IP7\_005314

# TurboCare®

2140 Westover Road - Chicopee, MA 01022-1057 Tel. (413) 593-0500 Fax (413) 593-3424

## PLEASE REMIT TO:

TurboCare  
P. O. Box 640848  
Pittsburgh, PA 15264-0848

Invoice: 108345

Page: 1

Date: 4/11/2003

## INVOICE

### Bill To:

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

### Ship To:

INTERMOUNTAIN POWER SERVICE CORP  
Intermountain Generating Station  
850 West Brush Wellman Road  
Delta UT 84624  
USA

PO Number: 02-22354  
Sales Rep: Process Engineered Systems  
Packing Slip: 22872

Terms: Net 30  
SO #: 15087

F.O.B: EX-WORKS  
Ship Via: SEE COMMENTS  
Ship Date: 4/11/2003

### IP TURBINE UNIT 1

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
1.00EA	LOT CHARGE		8,990.00000EA	2) 8,990.00
	INSTALL ADDT'L WORKCOPE			

### GOODS OR SERVICE ACCEPTED BY:

Qty. Ordered: 1.00

Our Part: LOT CHARGE

1.00EA LOT CHARGE

TRAVEL & LIVING ADDT'L SCOPE

3,467.28000EA

2) 3,467.28

Qty. Ordered: 1.00

Our Part: LOT CHARGE

### APPROVED FOR PAYMENT

#### LINE ITEM # 2

#### IP TURBINE UNIT 1

TRAVEL & LIVING 2,892.28

EXTRA WORK 8,990.00

CONSUMABLES 575.00

AUTHORIZED SIGNATURE

DATE

#### COPIES OF EXPENSES ATTACHED

#### Miscellaneous Charges

#### Description

Utah sales Tax 5.75%

716.29

#### Payment Schedule

Due Date  
5/11/2003

A late charge of one and one-half percent (1 1/2%) per month, but not in excess of the lawful maximum, will be imposed on all payments received after the due date.

Total: 13,173.57

*not a service contract*

VENDOR # 3001 REMIT TO #

VENDOR #

AMT PAID \$ 13173.57

CHECK NO. 032124 DUE DATE 11

GL 00-176V-502  
WD 00-07718-0

RECEIVED  
APR 15 2003

IPSC ACCOUNTING

IP7\_005315

**TurboCare®**

TurboCare, Inc.  
2140 Westover Road  
Chicopee, MA 01022  
Tel. (413) 593-0500  
Fax (413) 593-0097

**FAX**

To: DAVE SPENCE From: Charlie Graton  
Fax: 435-864-6670 Pages: 7 (including cover page)  
Phone: \_\_\_\_\_ Date: 6-20-03  
Re: requested info Phone 413-593-0500 Ext. 335

Hi Dave,

Bob Hogan asked me to send  
this to you, so here it is

Charlie

**CONFIDENTIALITY NOTICE:** The information contained in this message and the accompanying documents is **CONFIDENTIAL INFORMATION** that is legally privileged and intended only for the use of the above-named recipient. If the reader of this message is not the named recipient or an employee or agent responsible for delivering this telecopy to the named recipient, please notify us immediately to arrange for the return of the original documents to us. You are hereby notified that any review, disclosure, copying, distribution or the taking of any action in reliance on the contents of this information is strictly **PROHIBITED**.

**www.turbocare.com**

## Billing

Description(s): JHBH 039911

Date: 4-25-03

Sales Order #: 15087

Customer Station Unit #	Airfare Round trip (max #)	Inst. Hrs. (max #)	T.D. Hrs. (max #)	Travel & living @ cost Plus %	Firm price Or Time & Material	Extra work onsite
Intermountain	X	X	X	X	Firm	yes
Power						
Delta #1						

### Personnel on site

1 Tom Hug	2 Jim Craig	3	4
5	6	7	8

Firm price =	\$5,000.00	+	\$23,800.00	=	\$28,800.00
Labor cost =	X				
T & L cost =	X		Plus	X	% = X
Trucking cost =	X		Plus	X	% = X
Machine rental =	X				
Extra work cost =	\$12,256.00				
Consumables =	\$500.00		Plus	15	% = \$575.00
Total billing amount = \$41,631.00					

Notes:	T & L and Trucking cost included
	EXTN work @ 2000" T & M rates

Billing.doc rev 4

**TurboCare®**

### CHANGE AUTHORIZATION

CUSTOMER: Intermountain Power Station/Unit #: Delta #1

TurboCare Job #: JHBH039911

Customer Contact: Dave Spence

Purchase Order #: \_\_\_\_\_

TurboCare Contact: \_\_\_\_\_

Phone Number: 435-8646447

Fax Number: \_\_\_\_\_

Phone Number: \_\_\_\_\_

#### Change to Scope of Supply / Clarification

Labor involved in unpacking, identifying, locating springs for, stamping locations, fitting, machining, deburring + installing Steam Specialties packing. Also trimming teeth on (4) row packing due to holder distortion.

thurs. 3-6-03	3 hrs.	wed. 3-12-03	10 hrs.
Fri. 3-7-03	3 hrs.	thurs. 3-13-03	8 hrs.
Sat. 3-8-03	5 hrs.	Fri. 3-14-03	6 hrs.
Sun. 3-9-03	6 hrs.	Sat. 3-15-03	4 hrs.
mon. 3-10-03	6 hrs.	Sun. 3-16-03	4 hrs.
tues. 3-11-03	8 hrs.		

#### The following section must be completed:

Project Completion / Delivery is Affected: ☐ YES ☒ NO

If Yes, the time for the performance under the contract shall be extended for 0 days.

Price is Affected: ☒ YES ☐ NO

If Yes, price change described is:

☐ Fixed and Firm at \$ \_\_\_\_\_  
or ☒ Billable at the Time and Material Rates as attached.

- The work will be performed in accordance with the Terms and Conditions defined in the offer letter dated \_\_\_\_\_
- The work scope defined above shall be considered approved and will start upon receipt of Customer signed confirmation.

#### APPROVALS

<u>Dave Spence</u>	<u>3/16/03</u>	<u>Tom King</u>	<u>3-16-03</u>
Customer Representative Signature	Date	TurboCare Representative Signature	Date

Description:

Change Authorization

Document No.:

QC440.DOC

Rev 3

Date: 03/17/99

Page No.:

1 of 1

# EXTRA WORK

ST	OT	DT
3	5	6
3	2	4
6	9	-
8	-	-
8	-	-
8	-	-
6	-	-
<u>42</u>	<u>16</u>	<u>10</u>
<u>X \$94.00</u>	<u>X \$120.00</u>	<u>X \$130.00</u>
\$3,948.00	\$1,920.00	\$1,300.00

TOTAL = \$7,168.00

CNC Mill Rental 8 days @ \$450.00 per day  
\$450.00

X 8  
\$3,600.00

8 Days, 2 men @ \$93.00 a day each = \$1,488.00

For Week of: 3-3 thru 3-9-03

Is Project Complete: ☐ Yes ☒ No

Name: Tom Hug Customer: Epp-Delta #1 Job Location: JAB#039911 Sales Order: 15087

Day	Date	Meals	Hotel	Misc. Expenses	Total Amount	Work Performed	Work Code & Shift	ST Hrs Worked	OT Hrs Worked	DT Hrs Worked	Travel Time
Mon											
Tue											
Wed	3-5	40.	53.96		93.96	travel	3				8
Thu	3-6	40.	53.96		93.96	packing & spill installation	1	8	3		
Fri	3-7	40.	53.96	7.78	101.74			8	4		
Sat	3-8	40.	53.96		93.96				12		
Sun	3-9	40.	53.96		124.02					12	
Total:					507.64	Additional Description of Work Performed:					
Total:					130.50	WORK CODES:					
Airfare:						1. Repair Specialist					
Car Rental:						2. Work Leader					
Grand Total:					638.14	3. Supervisor					
Paid by Company:					( )	4. Engineer					
Amount Due Employee:					638.14	5. Project Manager					
						6. Other					

**Details of Miscellaneous Expenses**

Date	Description	Amount	Date	Description	Amount
3-7	tools	7.78			
3-9	gas	30.06			

**Customer Equipment Rental**

Employee Signature: Tom Hug Date: 3-10-03  
 Approved By: chc Date: 3-12-03  
 Audited By: \_\_\_\_\_ Date: \_\_\_\_\_

**Customer Sign-Off**

Name: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Date: \_\_\_\_\_

WHITE - ORIGINAL

CANARY - CUSTOMER COPY

PINK - EMPLOYEE'S COPY

# TurboCare

Demag Delaval Services

## Field Service

### Time and Expense Report

1444

 For Week of: 3-3-03 / 3-9-03 Is Project Complete: ☐ Yes ☐ No

 Name: James Craig Customer: I P P DELTA #1 Job Location: \_\_\_\_\_ Job #: JHBH039911 Sales Order: 15087

Day	Date	Meals	Hotel	Misc. Expenses	Total Amount	Work Performed	Work Code & Shift	ST Hrs Worked	OT Hrs Worked	DT Hrs Worked	Travel Time
Mon	3-3-03					INSTALLATION					
Tue	3-4-03										
Wed	3-5-03	40.00	53.96	25.20	119.16						8
Thu	3-6-03	40.00	53.96		93.96		1	8	3		
Fri	3-7-03	40.00	53.96		93.96		1	8	4		
Sat	3-8-03	40.00	53.96		93.96		1		12		
Sun	3-9-03	40.00	53.96		93.96		1			12	
Total:					495.00	<b>WORK CODES:</b> 1. Repair Specialist      4. Engineer 2. Work Leader          5. Project Manager 3. Supervisor            6. Other					
Airtare:											
Car Rental:											
Grand Total:											
Paid by Company:					( )	<b>Additional Description of Work Performed:</b> _____ _____ _____ _____ _____					
Amount Due Employee:					495.00						

#### Details of Miscellaneous Expenses

Date	Description	Amount
3-5-03	RIDE TO Airport 70 <sup>mi</sup>	25.20

#### Customer Equipment Rental

Date	Description	Amount

 Employee Signature: James Craig Date: 3-10-03  
 Approved By: [Signature] Date: 3-12-03  
 Audited By: \_\_\_\_\_ Date: \_\_\_\_\_

#### Customer Sign-Off

 Name: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Date: \_\_\_\_\_

For Week of: 3-10 thru 3-16-03

Is Project Complete: ☒ Yes ☐ No

Name: Tom Hug

Customer: T P P - Delta #1

Job Location:

Job #: TH011038911 Sales Order: 15087

Day	Date	Meals	Hotel	Misc. Expenses	Total Amount	Work Performed	Work Code & Shift	ST Hrs Worked	OT Hrs Worked	DT Hrs Worked	Travel Time
Mon	3-10	40.	58.82		98.82	packing + spill install/leak	3	8	4		
Tue	3-11	40.	58.82		98.82		1	8	4		
Wed	3-12	40.	58.82		98.82		1	8	4		
Thu	3-13	40.	58.82		98.82		1	8	4		
Fri	3-14	40.	58.82		123.12		1	8	4		
Sat	3-15	40.	58.82		127.56		1	8	12		
Sun	3-16	40.	58.82		118.05		1			12	
Total:					763.96						
Airtel:											
Car Rental:					625.66						
Grand Total:					1,389.62						
Paid by Company:											
Amount Due Employee:					1,389.62						

TURBOCARE

WORK CODES:

- 1. Repair Specialist
- 2. Work Leader
- 3. Supervisor
- 4. Engineer
- 5. Project Manager
- 6. Other

769.01

16

1389.67

**Details of Miscellaneous Expenses**

Date	Description	Amount	Date	Description	Amount
3-15	gas	28.74			
3-17	gas	19.23			
3-5thn39	motel tax				
	not charged for				
	5 days last week	24.30			

**Customer Equipment Rental**

Date	Description	Amount

Employee Signature: Tom Hug  
Approved By: Chad Hest  
Audited By: \_\_\_\_\_

Date: 3-17-03

Date: 3-20-03

Date: \_\_\_\_\_

**Customer Sign-Off**

Name: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_

WHITE - ORIGINAL

CANARY - CUSTOMER COPY

PINK - EMPLOYEE'S COPY

# THIS SHIPPING ORDER

must be legibly filled in, in ink, in indelible Pencil, or in Carbon, and retained by the Agent

Shipper's No. \_\_\_\_\_

(Name of Carrier)

SCAC \_\_\_\_\_

Carrier's No. \_\_\_\_\_

Received, subject to the classifications and tariffs in effect on the date of the Bill of Lading:

date \_\_\_\_\_

from \_\_\_\_\_

Property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any portion of said destination, and as to each party at the time interested in any or all of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained (as specified in Appendix B to Part 1035) which are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to

Intermountain Power

(Mail or street address of consignee—for purposes of notification only.)

Destination

Delta

State

UT

County

Zip

84624

Delivery

Address\*

859 West

Route

859 West Brushwellman Rd

(\*To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)

Delivering Carrier

G.K. Trucking.

Vehicle or Car Initials

101

No. \_\_\_\_\_

Number of Packages	Description of articles, special marks, and exceptions	*Weight (sub to correction)	Class or Rate	Check Column	Subject to Section 7 of conditions, if this shipment is to be delivered to consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.  (Signature of Consignor)  If charges are to be prepaid, write or stamp here: "To be Prepaid".  Received \$ _____ to apply in prepayment of the charges on the property described herein.  Agent or Cashier  Per _____ (the signature here acknowledges only the amount prepaid)
1	Killing Box # 5	5.600			

Collect On Delivery \$

and Remit to:

\*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight".

—where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.

Agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \_\_\_\_\_ per \_\_\_\_\_

C.O.D. Charge to be Paid by

☐

Charges Advanced

\$

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Per \_\_\_\_\_

HM EMERGENCY RESPONSE  
TELEPHONE NUMBER (\$172.604)

Shipper: rubocare cheapeake

Agent:

Per:

Date:

Per:

Date:

Permanent Post Office Address of Shipper

RPBOL-25 (Rev. 6/00)

© Copyright RoadPro — Palmyra, PA 17078-9741

→ Agent must detach and retain this Shipping

2

IP7\_005323



## Shipping Instructions

Date: 3-6-03

To: Carriagetown Transportation

From: Charlie Graton

Attn: John Cook

Phone: 1-413-323-9696

Phone: 1-413-593-0500

FAX: 1-413-323-6828

FAX: 1-413-593-0097

Pickup 1 Mill(s) N/A Gang Box(s) Date: 3-7-03

From: Turbocare

1310 Sheridan St.

Chicopee, MA. 01022

Contact Charlie Graton

Phone Number 413-593-0500 ext.335

## Delivery

Date: ASAP

To: Intermountain Power

859 West Brushwellman Rd.

Delta, UT.84624

Contact Dave Spence

Phone Number 435-864-6449

☐ Quote Only

ALL LOADS MUST BE TARPPED

Vendor Use

Billable to Chicopee, MA

Mileage:

Vendor's Initials:

Cost:

Date:

Any questions about paper work call John Cook

STEAM SPECIALTIES, INC.

PACKING LIST

STEAM SPECIALTIES, INC.  
41 OLD GICK RD  
SARATOGA SPRING, NY 12866

Order-#: 5602  
Order-date: 01/13/03

Page: 2

*Fixed packings  
ordered by  
Kelly Cloward*

Sold INTERMOUNTAIN POWER SERV.  
To ATTN: ACCOUNTS PAYABLE  
850 W. BRUSH WELLMAN RD.  
DELTA, UT 84624-9546

Ship INTERMOUNTAIN POWER SERV.  
To 850 W BRUSH WELLMAN ROAD  
ROUTE 1  
DELTA, UT 84624-9546

Cust-#: 136

P.O.#: 03-30540

Terms: NET 30

Slp: 19






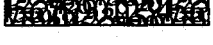
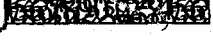
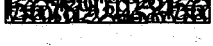
Ship-via:

Date-to-ship: 02/14/03

Date-shipped: 2/20/03

Cont:

Phone: BRIMHALL

Loc Seq-#	Item-# Description	Qty Ordered	Unit	Qty To-ship	Qty Shipped
80	 U841B235L0768 PKG RING #46126	1	EACH	1	<u>1</u>
90	 U841B235L0668 PKG RING #46127	1	EACH	1	<u>1</u>
100	 U831B275D0564 PKG RING #45245	2	EACH	2	<u>2</u>
					
					
					
					
					

*N4 G5*

*N4 G6*

*8th 75165*

*N3 G1*

*N2*

Comments: COMPLETE SHIPMENT

*JL* , *2/20/03*

*LB*

IP7\_005325

# STEAM SPECIALTIES, INC.

## PACKING LIST

STEAM SPECIALTIES, INC.  
41 OLD GICK RD  
SARATOGA SPRING, NY 12866

Order-#: 5602  
Order-date: 01/13/03

Page: 1

Sold INTERMOUNTAIN POWER SERV.  
To ATTN: ACCOUNTS PAYABLE  
850 W. BRUSH WELLMAN RD.  
DELTA, UT 84624-9546

Ship INTERMOUNTAIN POWER SERV.  
To 850 W BRUSH WELLMAN ROAD  
ROUTE 1  
DELTA, UT 84624-9546

Cust-#: 136

P.O.#: 03-30540

Terms: NET 30

Slp: 19



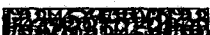



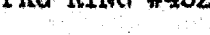
Ship-via:

Date-to-ship: 02/14/03

Date-shipped: 2/20/03

Cont:

Phone: BRIMHALL

Loc Seq-#	Item-# Description	Qty Ordered	Unit	Qty To-ship	Qty Shipped
10	 N-1 G1 U841B225L0668 PKG RING #46115	1	EACH	1	<u>1</u>
20	 N-1 G2 U842B225L0668 PACKING RING #46116	1	EACH	1	<u>1</u>
30	 N-1 G3 U842B262L0868 PACKING RING #46117	1	EACH	1	<u>1</u>
40	 N2-G5 U831B305D1234 PACKING RING #45226	1	EACH	1	<u>1</u>
50	 N2 G8 U831B305D1434 PKG RING #45225	1	EACH	1	<u>1</u>
60	 N2 G9 U841B255L1034 PKG RING #45224	2	EACH	2	<u>2</u>
70	 N2 G5 U841B235L1434 PKG RING #46121	1	EACH	1	<u>1</u>

IP7\_005326

PLEASE REMIT TO:

TurboCare  
P. O. Box 640848  
Pittsburgh, PA 15264-0848

Invoice: 107843

Page: 1

Date: 1/15/2003

## INVOICE

## Bill To:

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

## Ship To:

INTERMOUNTAIN POWER AGENCY  
INTERMOUNTAIN GENERATING STATION  
850 WEST BRUSHWELLMAN ROAD  
DELTA UT 84624

PO Number: 02-22354

Sales Rep: Process Engineered Systems

Packing Slip: 22400

Terms: Net 30

SO #: 15087

F.O.B:

Ship Via:

Ship Date: 1/13/03

## IP TURBINE UNIT 1

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
0.00	IP TURBINE UNIT 1		0.00000	27 145,340.00
	PARTIAL BILLING LINE 2			
	BILLING FOR MATERIAL ONLY			
	CONVENTIONAL PACKING			
	RETRACTABLE PACKING			
	COATED SPILL STRIPS			
	Miscellaneous Charges			
	Description			
	Utah sales Tax 5.75%			8,357.05

## Payment Schedule

## Due Date

2/14/2003

A late charge of one and one-half percent (1 1/2%) per month, but not in excess of the lawful maximum, will be imposed on all payments received after the due date.

Total: 153,697.05

GOODS OR SERVICE ACCEPTED BY:

RECEIVED  
JAN 21 2003

IPSC ACCOUNTING

APPROVED FOR PAYMENT

AUTHORIZED SIGNATURE

DATE

Copital project

VENDOR # 3001

VOUCHER #

AMOUNT \$ 153697.05

pay reg: DUE DATE 1/1

CL 00-1TGX-402

w/o 00-07718-0

IP7\_005327

THIS FORM TO BE USED FOR MATERIAL RECEIVED WITHOUT A PURCHASE ORDER  
OR WHEN A HARD COPY OF PURCHASE ORDER  
IS NOT AVAILABLE OR FOR A BLANKET PURCHASE ORDER

**IP7 005328**

20


**ABF FREIGHT SYSTEM, INC.**

(ABFS)

CONSIGNEE COPY

www.abf.com



TERMINAL 801-355-2030

DUNS 00-690-2977

01/20/03 04:13

SHIPPER'S NO.

NS

PICK UP DATE

CODE TO

P.O. NO.

NO. OF P.O.'S =

ROUTING

EFL-SLC

FREIGHT BILL NO.

041013343

25/14/03

1490

02-22354

030545-0001

MIA=UTAW

CONSIGNEE

187943-149A

INTERMOUNTAIN POWER AGENCY

INTERMOUNTAIN GEN STATION

850 W BRUSHWELLMAR RD

DELTA UT 84624

TURBOCARE

1310 SHERIDAN ST

CHICPEE MA 01022

PIECES

DESCRIPTION

WEIGHT (LBS.)

RATE

CHARGES

2 SKDS

30 PCS

TURBINE MACH PARTS I/S

ITEM 133390-03V

/ SHIPPER LOAD AND COUNT

// FUEL SURCHARGE

/UTAW,8389

ABF MEASURED CUBE: 125.333 CUFT

2,634

SLC

FSC

**RECEIVED**

JAN 22 2003

BILL TO

2

TOTALS FREIGHT BILL NO

COD AMOUNT

041013343

RB

2117

PAY THIS AMOUNT

TAR

ABF646

OZIP

01022

DZIP

84624

SPEC. HAND.

IPSC ACCOUNTING

REC

PAY

REMIT TO

CUBE

0125

DELIVERY DUE

WED 01/22

PRIOR PRO

DATE

DELIVERY DATE

DRIVER

0121

CONSIGNEE

BY (CUSTOMER'S SIGNATURE)

IP7\_005329

PACKING SLIP: 22400  
PAGE: 1

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354 SO: 15087 SALESPERSON: Process Engineer S  
SHIP DATE: 01/14/03 SHIP VIA: ABF FRT FFAL F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

1.00EA	1.00 U841B275L1234
	CONVENTIONAL PACKING
	Our P/N: PR4447P03

N363

1.00EA	1.00 U841B275L1234
	CONVENTIONAL PACKING
	Our P/N: PR4447P04

N3G4

1.00EA	1.00 U841B275L1234
	CONVENTIONAL PACKING
	Our P/N: PR4447P05

N3G5

1.00EA	1.00 U841B275L1434
	CONVENTIONAL PACKING
	Our P/N: PR4447P06

N3G6

RECEIVED

JAN 22 2003

B  
Comp

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005330

PACKING SLIP: 22400  
PAGE: 2

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABF FRT PFAL      F.O.B: EX-WORKS

=====

PLANNED	QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
---------	-----	------------	-----------------------------

=====

1.00EA	1.00	U841B275L0668	CONVENTIONAL PACKING
			Our P/N: PR4448P01

N4G1 ✓

1.00EA	1.00	U841B275L0668	CONVENTIONAL PACKING
			Our P/N: PR4448P02

N4G2 ✓

1.00EA	1.00	U841B275L0668	CONVENTIONAL PACKING
			Our P/N: PR4448P03

N4G3 ✓

1.00EA	1.00	U841B275L0668	CONVENTIONAL PACKING
			Our P/N: PR4448P04

N4G4 ✓

*28 B Comp*

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005331

PACKING SLIP: 22400  
PAGE: 3

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABF FRT PPAL      F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

48.00EA	48.00	U695C004N0875 CONV PACKING SPRINGS Our P/N: SP006C004N0875
---------	-------	--

N3G3-6, N4G1-4

1.00EA	1.00	U831B275D1046 RETRACTABLE PACKING Our P/N: PR4446P01-B
--------	------	--

STA 9TE

1.00EA	1.00	U813B275D0668 RETRACTABLE PACKING Our P/N: PR4446P02-B
--------	------	--

STA 9GE

1.00EA	1.00	U831B275B0846 RETRACTABLE PACKING Our P/N: PR4446P03-B
--------	------	--

STA 10TE

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005332

PACKING SLIP: 22400  
PAGE: 4

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABF FRT PPAL      F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

1.00EA	1.00 U831B275B0546
	RETRACTABLE PACKING
	Our P/N: PR4446P04-B ✓
	STA 10GE

1.00EA	1.00 U831B275B0646
	RETRACTABLE PACKING
	Our P/N: PR4446P05-B
	STA 11TE

1.00EA	1.00 U831B275B0468
	RETRACTABLE PACKING
	Our P/N: PR4446P06-B ✓
	STA 11GE

1.00EA	1.00 U831B275B0746
	RETRACTABLE PACKING
	Our P/N: PR4446P07-B ✓
	STA 12TE

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005333

PACKING SLIP: 22400

PAGE: 5

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354  
SHIP DATE: 01/14/03

SO: 15087  
SHIP VIA: ABF FRT FEAL

SALESPERSON: Process Engineer S  
F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

1.00EA	1.00 U831B275B0568 RETRACTABLE PACKING Our P/N: PR4446P08-B ✓ STA 12GE
--------	---

1.00EA	1.00 U841B275L0646 RETRACTABLE PACKING Our P/N: PR4446P09-B ✓ STA 13TE
--------	---

1.00EA	1.00 U841B275L0468 RETRACTABLE PACKING Our P/N: PR4446P10-B STA 13GE
--------	---

1.00EA	1.00 U841B275L0646 RETRACTABLE PACKING Our P/N: PR4446P11-B STA 14TE
--------	---

21 B  
copy

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005334

PACKING SLIP: 22400  
PAGE: 6

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABF FRT PPAL      F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

1.00EA	1.00 U841B275L0468 RETRACTABLE PACKING Our P/N: PR4446P12-B
	STA 14GE

1.00EA	1.00 U841B262L0868 RETRACTABLE PACKING Our P/N: PR4444P04-B
	N1G4

1.00EA	1.00 U841B262L0868 RETRACTABLE PACKING Our P/N: PR4444P05-B
	N1G5

1.00EA	1.00 U841B262L0868 RETRACTABLE PACKING Our P/N: PR4444P06-B
	N1G6

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005335

PACKING SLIP: 22400  
PAGE: 7

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354 SO: 15087 SALESPERSON: Process Engineer S  
SHIP DATE: 01/14/03 SHIP VIA: ADF FRT FEAL F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

1.00EA	1.00 U841B262L0768
	RETRACTABLE PACKING
	Our P/N: PR4444P07-B

N1G7 ✓

1.00EA	1.00 U831B305D1234
	RETRACTABLE PACKING
	Our P/N: PR4445P06-B

N2G6 ✓

1.00EA	1.00 U831B305D1234
	RETRACTABLE PACKING
	Our P/N: PR4445P07-B

N2G7 ✓

24.00EA	24.00 U699C070S0510
	SPILL STRIPS
	Our P/N: SS1001C070S0510CR

STA 9TE (R1) ✓

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005336

PACKING SLIP: 22400

PAGE: 8

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABF FRT FPAL      F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

24.00EA	24.00 U699C070S0510
	SPILL STRIPS
	Our P/N: SS1001C070S0510CR ✓
	STA 9TE (R2)

24.00EA	24.00 U699C070S0510
	SPILL STRIPS
	Our P/N: SS1001C070S0510CR
	STA 9GE (R1) ✓

24.00EA	24.00 U699C070S0510
	SPILL STRIPS
	Our P/N: SS1001C070S0510CR ✓
	STA 9GE (R2)

24.00EA	24.00 U699C072S0530
	SPILL STRIPS
	Our P/N: SS1001C072S0530CR ✓
	STA 10TE (R1)

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005337

PACKING SLIP: 22400  
PAGE: 9

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABE FRT FEAL      F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

24.00EA	24.00 U699C072S0530
	SPILL STRIPS
	Our P/N: SS1001C072S0530CR ✓
	STA 10TE (R2)

24.00EA	24.00 U699C072S0530
	SPILL STRIPS
	Our P/N: SS1001C072S0530CR ✓
	STA 10GE (R1) ✓

24.00EA	24.00 U699C072S0530
	SPILL STRIPS
	Our P/N: SS1001C072S0530CR ✓
	STA 10GE (R2) ✓

26.00EA	26.00 U699C069S0550
	SPILL STRIPS
	Our P/N: SS1001C069S0550CR ✓
	STA 11TE

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005338

PACKING SLIP: 22400  
PAGE: 10

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABF FRT PPAL      F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

26.00EA	26.00 U699C069S0550
	SPILL STRIPS
	Our P/N: SS1001C069S0550CR ✓
	STA 11GE

26.00EA	26.00 U699C071S0565
	SPILL STRIPS
	Our P/N: SS1001C071S0565CR ✓
	STA 12TE

26.00EA	26.00 U699C071B0565
	SPILL STRIPS
	Our P/N: SS1001C071B0565CRM
	STA 12GE

28.00EA	28.00 U699C069B0590
	SPILL STRIPS
	Our P/N: SS1001C069B0590CRM
	STA 13TE

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005339

PACKING SLIP: 22400

PAGE: 11

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354  
SHIP DATE: 01/14/03

SO: 15087  
SHIP VIA: AIR FRT FEAL

SALESPERSON: Process Engineer S  
F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

28.00EA	28.00 U699C069B0590 SPILL STRIPS Our P/N: SS1001C069B0590CRM STA 13GE
---------	--

30.00EA	30.00 U699C068B0625 SPILL STRIPS Our P/N: SS1001C068B0625CRM STA 14TE
---------	--

30.00EA	30.00 U699C068B0625 SPILL STRIPS Our P/N: SS1001C068B0625CRM STA 14GE
---------	--

252.00EA	252.00 SP001P02 SPILL SPRINGS Our P/N: SP001P02 STA 9-10 TE/GE R1-R2
----------	---

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005340

PACKING SLIP: 22400  
PAGE: 12

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354      SO: 15087      SALESPERSON: Process Engineered S  
SHIP DATE: 01/14/03      SHIP VIA: ABF FRT PEAL      F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

STA 14 TE/GE

160.00EA      160.00 SP001P03  
                 SPILL SPRINGS  
                 Our P/N: SP001P03 ✓

STA 11-13TE/GE

RECEIVED  
JAN 24 2003

IPSC ACCOUNTING

ACCOUNTING

IP7\_005341

# TurboCare®

Westover Road - Chicopee, MA 01022-1057 Tel. (413) 593-0500 Fax (413) 593-3424

*For lifting / installation  
of new Project*

*Packings*

PLEASE REMIT TO:

TurboCare  
P. O. Box 640848  
Pittsburgh, PA 15264-0848

**ORIGINAL**

Invoice: 106864

Page: 1

Date: 4/17/2002

## INVOICE

### Bill To:

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

### Ship To:

INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

PO Number: 02-22354

Terms: Net 30

F.O.B: DESTINATION

Sales Rep: Process Engineered Systems

SO #: 15086

Ship Via: NDA PPAL

Packing Slip: 21595

Ship Date: 4/17/2002

### IP TURBINE UNIT 2

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
1.00EA	LOT CHARGE EXTRA ON-SITE WORK		10,734.00000EA	10,734.00

y. Ordered: 1.00

Our Part: LOT CHARGE

COPIES OF EXPENSE REPORTS ENCLOSED

Payment Schedule

Due Date  
5/17/2002

late charge of one and one-half percent (1 1/2%) per month, but not in excess of the lawful maximum, will be imposed on all payments received after the due date.

Total: *NS* 10,734.00

GOODS OR SERVICE ACCEPTED BY:

*Approved*  
APPROVED FOR PAYMENT

*Capital projects - needs your sign*  
AUTHORIZED SIGNATURE

DATE

**RECEIVED**  
APR 23 2002

IPSC ACCOUNTING

VENDOR # 3001 REMIT TO # 09

VOUCHER # 0211033731

AMT PAID \$ 10734.00

CHECK NO 17777 DUE DATE 5/17/02

G.L. 00-2708-402

WO 00-07718-0

*YV*

IP7\_005342

## Billing

Description(s): JHBH039867 INST.

Date: 4-12-02

Sales Order #: 15086

Customer Station Unit #	Airfare Round trip (max #)	Inst. Hrs. (max #)	T.D. Hrs. (max #)	Travel & living @ cost Plus %	Firm price Or Time & Material	Extra work onsite
<u>INTERMOUNTAIN</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>FIRM</u>	<u>YES</u>
<u>DECTA #2</u>						

### Personnel on site

<u>1 TOM HUG</u>	<u>2 SAM TRADINO</u>	<u>3</u>	<u>4</u>
<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>

Firm price =	
Labor cost = <u>X</u>	
T & L cost = <u>X</u>	Plus <u>X</u> % = <u>X</u>
Trucking cost = <u>X</u>	Plus <u>X</u> % = <u>X</u>
Machine rental = <u>X</u>	
Extra work cost = <u>\$10,734.00</u>	
Consumables = <u>X</u>	Plus <u>X</u> % = <u>X</u>
Total billing amount = <u>10,734.00</u>	

Notes:

**RECEIVED**  
APR 23 2002

PSC ACCOUNTING

Billing.doc rev 4

IP7\_005343

# TurboCare®

2140 Westover Road - Chicopee, MA 01022-1057 Tel. (413) 593-0500 Fax (413) 593-3424

PLEASE REMIT TO:

TurboCare  
P. O. Box 640848  
Pittsburgh, PA 15264-0848

ORIGINAL

## INVOICE

Invoice: 999118

Page: 1

Date: 3/18/2002

**Bill To:**

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

**Ship To:**

INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

PO Number: 02-22354  
Sales Rep: Process Engineered Systems  
Packing Slip: 21356

Terms: Net 30  
SO #: 15086

F.O.B: DESTINATION  
Ship Via: NDA PPAL  
Ship Date: 3/18/2002

IP TURBINE UNIT 2

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
PROVIDE ALL MATERIALS, SUPERVISION, LABOR, TOOLS, AND EQUIPMENT FOR VARIABLE CLEARANCE DIAPHRAGM AND REDUCE CLEARANCE SPILL STRIP INSTALLATION IN THE INTERMEDIATE PRESSURE TURBINE SECTION ON UNIT # 2				
			TOTAL	179,340.00
	LESS INV # 106333			- 12,800.00
	LESS INV # 106417			- 28,140.00
				+ 6,003.00
MILLARD COUNTY			UTAH SASES TAX	
	Due Date			
	4/17/2002			

A late charge of one and one-half percent (1 1/2%) per month, but not in excess of the lawful maximum, will be imposed on all payments received after the due date.

Total: 144,403.00

TAXES ON MATERIAL ONLY \$104,400.00 ON THIS INVOICE

GOODS OR SERVICE ACCEPTED BY:

APPROVED FOR PAYMENT

SIGN  
HERE

AUTHORIZED SIGNATURE

DATE

Original project - needs your sign.

RECEIVED

APR 01 2002

IPSC ACCOUNTING

VENDOR # 3001 REMIT TO # 09  
VOUCHER # 0210030501 (02144)  
AMT PAID \$ 144403.00  
CHECK # 02-144 H DUE DATE 11  
GL 00-2TGX-602 VV  
w/o 00-07718-0

IP7\_005344

**MULTI-FACILITY FORM****Service Time Sheet Weekly Report**

Note: A separate time sheet is required for each customer P.O.

Customer: Intermountain PowerWeek of: 3-11 thru 3-17-02Station No.: Delta

Outage Dates: \_\_\_\_\_

Unit No.: 2TC Sales Order No.: 15086

Customer P.O. No.: \_\_\_\_\_

## Description of Work (Specific to Customer P.O.):

packing + spill strip installation

TurboCare Facility Represented	TC Employee	Work Class	Rate Class	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.	Week Totals
Chicopee	Tom Hug	2	ST	8	8	8	8	8			40
		1	OT	2	2	2	2	3	10.5		21.5
			DT							10	10
			TRVL								
	Sam Trapino		ST	8	8	8	8	8			40
			OT	2	2	2	2	3	10.5		21.5
			DT							10	10
			TRVL								
			ST								
			OT								
			DT								
			TRVL								
			ST								
			OT								
			DT								
			TRVL								
			ST								
			OT								
			DT								
			TRVL								

Facility Codes:

Work Codes:

TCCHC

1 - Repair Specialist

TCHTN

2 - Work Leader

TCJAX

3 - Supervisor

TCMTR

4 - Engineer

TCPER

5 - Project Manager

TCSTL

6 - Other

- A time sheet must be filled out in accordance with the Customer's P.O.

- Change Orders must be tracked on a separate time sheet.

Total

## Approvals

Signed by Customer Representative

Date

Signed by TurboCare Project Mgr.

Date

Description:

Document No.:

Rev.1

Page No.:

Service Time Sheet Weekly Report

OCM-79.DOC

Date: 11/08/01

1 of 1

IP7\_005345

**MULTI-FACILITY FORM****Service Time Sheet Weekly Report**

Note: A separate time sheet is required for each customer P.O.

Customer: Intermountain PowerWeek of: 3-4 thru 3-10-02Station No.: Delta

Outage Dates: \_\_\_\_\_

Unit No.: 2TC Sales Order No.: 15086

Customer P.O. No.: \_\_\_\_\_

**Description of Work (Specific to Customer P.O.):**

TurboCare Facility Represented	TC Employee	Work Class	Rate Class	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.	Week Totals
<u>Chicopee</u>	<u>T. Hug</u>		ST			8	8	8			
			OT			2	2	2	10		
			DT							10	
		1	TRVL		8						
	<u>S. Trapino</u>		ST			8	8	8			
			OT			2	2	2	10		
			DT							10	
		2	TRVL		11						
			ST								
			OT								
			DT								
			TRVL								
			ST								
			OT								
			DT								
			TRVL								
			ST								
			OT								
			DT								
			TRVL								

**Facility Codes:**

TCCHC  
TCHTN  
TCJAX  
TCMTR  
TCPER  
TCSTL

**Work Codes:**

1 - Repair Specialist  
2 - Work Leader  
3 - Supervisor  
4 - Engineer  
5 - Project Manager  
6 - Other

- A time sheet must be filled out in accordance with the Customer's P.O.
- Change Orders must be tracked on a separate time sheet.

**Total****Approvals**

Signed by Customer Representative

Date

Signed by TurboCare Project Mgr.

Date

Description:

**Service Time Sheet Weekly Report**

Document No.:

QCM-79.DOC

Rev.1

Date: 11/08/01

Page No.:

1 of 1

**IP7\_005346**

FOR INFORMATION VISIT  
www.pilotair.com



010557477

**PILOT**  
AIR FREIGHT

P.O. BOX 97 • LIMA, PA 19037-0097  
1-800-HI-PILOT

SHIPMENT#  
010557477

DATE 3/11/02	ORIGIN BDL
-----------------	---------------

PILOT ACCOUNT NO. 0001689	SHIPPER'S REFERENCE NO. (WILL APPEAR ON INVOICE) PIL 21210/21304
<b>FROM</b> TURBUCARE VAL PATRINO 418-593-6463 1310 SHERIDAN STREET CHICAGO, IL 60642 ZIP CODE REQUIRED 60642	

PILOT ACCOUNT NO.	CONSIGNEE'S REFERENCE NO. (WILL APPEAR ON INVOICE) PIL 02-22354
<b>TO</b> INTERNATIONAL TOURS & TRAVEL LATE MOUNTAIN GEN. STATION 55001 BLANCHARD ST DELTA UT 84124 ZIP CODE REQUIRED 84124	

SHIPPER'S AUTHORIZATION (SIGNATURE) Val Patrino	DECLARED VALUE 406	VIA 00	DESTINATION SLC/UT
*Cargo items tendered for air transportation are subject to P.A.A. security controls by air carriers and when appropriate, other government regulations. Copies of all relevant shipping documents showing the cargo's consignee, consignor, description, and other relevant data will be retained on file until the cargo completes its air transportation.		CARRIER'S LIABILITY LIMITED. Unless a value is declared here, Declared Value is agreed and understood to be \$0.00 per lb. but not less than \$50.00 per shipment or actual value of such piece(s), whichever is less.	
ZIP CODE REQUIRED	PILOT 3RD PARTY ACCT. NO.	3RD PARTY PHONE NO.	PREPAID <input checked="" type="checkbox"/> COLLECT <input type="checkbox"/> 3RD PARTY (SEE*) <input type="checkbox"/> IF NO PAYMENT TYPE IS CHECKED, SHIPPER WILL BE BILLED CHARGES

PIECES	DESCRIPTION	ACTUAL WEIGHT	DIMENSIONS			DIM WEIGHT	RATE SCHEDULE	CHARGE(S)
18 1/19	Mobile machine PORET	1124 1650	L 25	W 18	H 5			
			50	51	40			

SPECIAL INSTRUCTIONS ADDITIONAL CHARGES MAY APPLY		SERVICES	
<input type="checkbox"/> PLATINUM GUARANTEE <input type="checkbox"/> SATURDAY DELIVERY <input type="checkbox"/> C.O.D. <input type="checkbox"/> OTHER:	<input type="checkbox"/> PROOF OF DELIVERY REQUIRED <input type="checkbox"/> CONTAINS DANGEROUS GOODS <input type="checkbox"/> HOLD AT AIRPORT FOR PICK-UP <input type="checkbox"/> CONVENTION <input type="checkbox"/> GBL	<input checked="" type="checkbox"/> NEXT DAY AM <input type="checkbox"/> NEXT DAY PM <input type="checkbox"/> OTHER	<input type="checkbox"/> TWO DAY <input type="checkbox"/> THREE DAY <input type="checkbox"/> FIRST FLIGHT SERVICE
		NO LEVEL INDICATED WILL BE CONSIDERED A NEXT DAY PM REQUEST.	

RECEIVED BY PILOT AIR FREIGHT D. Solari	CONSIGNEE SIGNATURE	PRINT LAST NAME
DATE 3/11/02	TIME 4:30	DATE

	PICK-UP	
	TRANSFER	
	DELIVERY	
	BEYOND	
	OTHER	
	EXCESS VALUE	
SHIPPER'S C.O.D.	\$	
C.O.D. FEE		
TOTAL CHARGES (U.S. FUNDS)		\$



010557477

010557477

3031 (Rev. 10/00)

QDOC 4.9.90/3

DELIVERY RECEIPT

IP7\_005347

PACKING SLIP: 21309  
PAGE: 1

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-21093 SO: 14968 SALESPERSON: Process Engineered S  
SHIP DATE: 03/11/02 SHIP VIA: PILOT AIR PPAL F.O.B: EX-WORKS

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

2.00EA	2.00	SRA1002FLE000AL HIGH EFFICIENCY SEAL RINGS Our P/N: SRA1002FLE000AL
--------	------	---

8TH STAGE INNER SEAL

1.00EA	1.00	SR2002G250ELAL HIGH EFFICIENCY SEAL RING Our P/N: SR2002G250ELAL
--------	------	--

8TH STAGE OUTER SEAL

1.00EA	1.00	SR3002G250ELAP HIGH EFFICIENCY SEAL RING Our P/N: SR3002G250ELAP
--------	------	--

8TH STAGE SEAL & FIT

1.00EA	1.00	SR4024GLFCALAP HIGH EFFICIENCY SEAL RING Our P/N: SR4024GLFCALAP
--------	------	--

8TH STAGE OUTER LOCK

1.00EA	1.00	SR5001G375ENAP HIGH EFFICIENCY SEAL RING Our P/N: SR5001G375ENAP
--------	------	--

8TH STAGE RETAINING

PACKING SLIP: 21310  
PAGE: 1

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354 SO: 15086 SALESPERSON: Process Engineered S  
SHIP DATE: 03/11/02 SHIP VIA: PILOT AIR PPAL F.O.B: DESTINATION

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

IP TURBINE UNIT 2

1.00EA	1.00 U831B275D1046 RETRACTABLE PACKING Our P/N: PR4327-B
--------	--

STA 9TE

1.00EA	1.00 U831B275D0668 RETRACTABLE PACKING Our P/N: PR4328-B
--------	--

STA 9GE

1.00EA	1.00 U831B275B0846 RETRACTABLE PACKING Our P/N: PR4329-B
--------	--

STA 10TE

1.00EA	1.00 U831B275B0568 RETRACTABLE PACKING Our P/N: PR4330P01-B
--------	---

STA 10GE

1.00EA	1.00 U831B275B0646 RETRACTABLE PACKING Our P/N: PR4331-B
--------	--

STA 11TE

1.00EA	1.00 U831B275B0468 RETRACTABLE PACKING
--------	---

ACCOUNTING

IP7\_005349

# TurboCare®

2140 Westover Road • Chicopee, MA 01022-1057  
Tel. 413-593-0500 • Fax 413-593-3424

PACKING SLIP: 21310  
PAGE: 2

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354 SO: 15086 SALESPERSON: Process Engineered S  
SHIP DATE: 03/11/02 SHIP VIA: PILOT AIR PPAL F.O.B: DESTINATION

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER	DESCRIPTION	REV
-------------	------------	-------------	-------------	-----

=====

Our P/N: PR4332-B

STA 11GE

1.00EA	1.00	U831B275B0746	RETRACTABLE PACKING	
			Our P/N: PR4332-B	

STA 12TE

1.00EA	1.00	U831B275B0568	RETRACTABLE PACKING	
			Our P/N: PR4330P02-B	

STA 12GE

1.00EA	1.00	U841B275L0646	RETRACTABLE PACKING	
			Our P/N: PR4334P01-B	

STA 13TE

1.00EA	1.00	U841B275L0468	RETRACTABLE PACKING	
			Our P/N: PR4335P01-B	

STA 13GE

1.00EA	1.00	U841B275L0646	RETRACTABLE PACKING	
			Our P/N: PR4334PD2-B	

STA 14TE

ACCOUNTING

IP7\_005350

PACKING SLIP: 21310  
PAGE: 3

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354 SO: 15086 SALESPERSON: Process Engineered S  
SHIP DATE: 03/11/02 SHIP VIA: PILOT AIR PPAL F.O.B: DESTINATION

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER/DESCRIPTION/REV
-------------	------------	-----------------------------

=====

1.00EA	1.00	U841B275L0468 RETRACTABLE PACKING Our P/N: PR4335P02-B
--------	------	--

STA 14GE

1.00EA	1.00	U841B262L0868 RETRACTABLE PACKING Our P/N: PR4335P01-B
--------	------	--

N1G4

1.00EA	1.00	U841B262L0868 RETRACTABLE PACKING Our P/N: PR4336P02-B
--------	------	--

N1G5

1.00EA	1.00	U841B262L0868 RETRACTABLE PACKING Our P/N: PR4336P03-B
--------	------	--

N1G6

1.00EA	1.00	U841B262L0768 RETRACTABLE PACKING Our P/N: PR4337P01-B
--------	------	--

N1G7

1.00EA	1.00	U831B305D1234 RETRACTABLE PACKING Our P/N: PR4338P01-B
--------	------	--

ACCOUNTING

IP7\_005351

**TurboCare®**

2140 Westover Road • Chicopee, MA 01022-1057  
Tel. 413-593-0500 • Fax 413-593-3424

PACKING SLIP: 21310

PAGE: 4

SHIP TO:

INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

PO: 02-22354

SO: 15086

SALESPERSON: Process Engineered S

SHIP DATE: 03/11/02

SHIP VIA: PILOT AIR PPAL

F.O.B: DESTINATION

=====

PLANNED QTY	SHIPPED/BO	PART NUMBER	DESCRIPTION	REV
-------------	------------	-------------	-------------	-----

=====

N2G6

1.00EA

1.00 U831B305D1234

RETRACTABLE PACKING

Our P/N: PR4338P02-B

N2G7

ACCOUNTING

IP7\_005352

**From** **3-1-02**

**Sender's Name** **Tom Hug** **Phone** **360 4235131**

**Company** **Turbo Care**

**Address** **211 Fulbright PL** **Dept./Floor/Suite/Room**

**City** **Kelso** **State** **Wa.** **ZIP** **98626**

**2 Your Internal Billing Reference**

**3 To Recipient's Name** **Dave Spence** **Phone** **435 8646449**

**Company** **Inter mountain Power**

**Address** **850 West Brushwellman Rd.** **Dept./Floor/Suite/Room**

**City** **Delta** **State** **Utah** **ZIP** **84624**

To "HOLD" at FedEx location, print FedEx address here.

We cannot deliver to P.O. boxes or P.O. ZIP codes.



**4a Express Package Service**

☐ FedEx Priority Overnight Next business morning

☐ FedEx Standard Overnight Next business afternoon

☐ FedEx First Overnight Earliest next business morning delivery to select locations

☐ FedEx 2Day\* Second business day

☒ FedEx Express Saver\* Third business day

\* FedEx Letter Rate not available Minimum charge: One-pound rate

**4b Express Freight Service**

☐ FedEx 1Day Freight\* Next business day

☐ FedEx 2Day Freight Second business day

☐ FedEx 3Day Freight Third business day

\* Call for Confirmation

\* Declared value limit \$500

**5 Packaging**

☐ FedEx Letter\*

☐ FedEx Pak\*

☒ Other Pkg. Includes FedEx Box, FedEx Tube, and customer pkg.

**6 Special Handling**

☐ Saturday Delivery Available for FedEx Priority Overnight and FedEx 2Day to select ZIP codes

☐ Sunday Delivery Available for FedEx Priority Overnight to select ZIP codes

☐ HOLD Weekday at FedEx Location Not available with FedEx First Overnight

☐ HOLD Saturday at FedEx Location Available for FedEx Priority Overnight and FedEx 2Day to select locations

**Does this shipment contain dangerous goods?** One box must be checked.

☒ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required

Dangerous Goods cannot be shipped in FedEx packaging.

☐ Dry Ice Dry Ice, 9, UN 1845 x kg

☐ Cargo Aircraft Only

**7 Payment Bill to:**

☒ Sender Acct. No. in Section I will be billed.

☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Enter FedEx Acct. No. or Credit Card No. below.

**Total Packages** **1** **Total Weight** **55** **Total Declared Value** **\$ .00**

\*Our liability is limited to \$100 unless you declare a higher value. See back for details.

**8 Release Signature** *Tom Hug* Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

**Questions? Call 1-800-Go-FedEx (800-463-3339)**

**Visit our Web site at [www.fedex.com](http://www.fedex.com)**

Rev. Date 11/98 • Part #154815 • ©1994-98 FedEx • PRINTED IN U.S.A. GBFE 5/99

Tools



2140 Westover Road - Chicopee, MA 01022-1057 Tel. (413) 593-0500 Fax (413) 593-3424

ORIGINAL

PLEASE REMIT TO:  
TurboCare  
P. O. Box 640848  
Pittsburg, PA 15264-0848

Invoice: 106417

Page: 1  
Date: 2/11/2002

INVOICE

Bill To:

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

Ship To:

INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

PO Number: 02-22354  
Packing Slip: 21184  
Sales Rep: Process Engineered Systems

Terms: Net 30  
SO #: 15086

F.O.B: DESTINATION  
Ship Date: 2/11/2002  
Ship Via: BESTWAY GD PPAL

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
1.00EA	LOT CHARGE COATED SPILL STRIPS		28,140.000000EA	28,140.00

Qty. Ordered: 1.00

Our Part: LOT CHARGE

STA 9-14 (W/ SPRINGS)

Miscellaneous Charges

Description

UTAH SALES TAX 5.75%

1,618.05

Payment Schedule

Due Date  
3/13/2002

Total: 29,758.05

GOODS OR SERVICE ACCEPTED BY:

TRK to Dave Spence x6449 called 2/20/02

RECEIVED  
FEB 14 2002

IPSC ACCOUNTING

APPROVED FOR PAYMENT

AUTHORIZED SIGNATURE DATE

Capital project - needs your signature

VENDOR # 3001 REMIT TO # 09

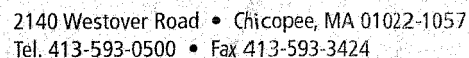
VOUCHER #

AMT PAID \$ 29758.05

CHECK NO DUE DATE 2/28/02

GL 00 2TGX-402  
WD 00-0778-0

IP7\_005354



2140 Westover Road • Chicopee, MA 01022-1057  
Tel. 413-593-0500 • Fax 413-593-3424

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
820 West Brushwellman Road  
Delta UT 84624  
USA

WILL TO:  
INTERMOUNTAIN POWER SERVICE CORP  
ACCOUNTS PAYABLE  
350 WEST BRUSH HILLMAN ROAD  
DULLES VA 24624-9546  
USA

Q1 02-22354 SO: 15086 SALESPERSON: PROCESS ENGINEERED 3  
SHIP DATE: 02/08/02 SHIP VIA: UPS GROUND PPAL P.O.B: DESTINATION

[illegible]

## REFERENCES

24.002A 24.00 U699C07080510  
SPILL STRIPS  
Our P/N: NS1001C07080510CR  
GTA RTE AI

24.00EA 24.00 9599C07080510  
SPILL STRIPS  
Our P/N: 581001007080510CP  
37A 9TH R2

24.00RA 24.00 0699C07080510  
SPILL STRIPS  
Our P/N: SB1001CG7080510CR  
STA 90E S1

10.003A 24.00 U699C07080510  
SPILL STRIPS  
OUR P/N: 881901C07080510CR  
ATA 905 R2

71-01A 24 00 0659007180410  
SPILL SITE (P)

## ACKNOWLEDGMENTS

**IP7 005355**

2140 Westover Road • Chicopee, MA 01022-1057  
Tel. 413-593-0500 • Fax 413-593-3424

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
330 West Brushwellman Road  
Bellevue UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTING DEPARTMENT  
600 WEST BIRCH HILLMAN ROAD  
SALT LAKE UT 84124-0540  
USA.

[illegible]

240000A

# MEMORANDUM

57A 1063 21

24.0000

# FINAL REPORT

CAR 9/86 031001007290530CR

ARMED AND DANGEROUS

26.0000

SECRET

On 11/11/2000, 10:00 AM, [REDACTED] wrote:

018 1122

200000

**CYCLIC STRESS**

UNIT 9/11 2310016072203500

1. 1990年12月，在《中国环境报》上，刊登了“中国环境状况令人堪忧”的标题，并附有“中国环境状况令人堪忧”的副标题。

25 000000

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

Qm. Pm. AS10080700560536

$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

## Accounting

**IP7 005356**

1  
 2  
 3  
 4  
 5  
 6  
 7  
 8  
 9  
 10  
 11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90  
 91  
 92  
 93  
 94  
 95  
 96  
 97  
 98  
 99  
 100  
 101  
 102  
 103  
 104  
 105  
 106  
 107  
 108  
 109  
 110  
 111  
 112  
 113  
 114  
 115  
 116  
 117  
 118  
 119  
 120  
 121  
 122  
 123  
 124  
 125  
 126  
 127  
 128  
 129  
 130  
 131  
 132  
 133  
 134  
 135  
 136  
 137  
 138  
 139  
 140  
 141  
 142  
 143  
 144  
 145  
 146  
 147  
 148  
 149  
 150  
 151  
 152  
 153  
 154  
 155  
 156  
 157  
 158  
 159  
 160  
 161  
 162  
 163  
 164  
 165  
 166  
 167  
 168  
 169  
 170  
 171  
 172  
 173  
 174  
 175  
 176  
 177  
 178  
 179  
 180  
 181  
 182  
 183  
 184  
 185  
 186  
 187  
 188  
 189  
 190  
 191  
 192  
 193  
 194  
 195  
 196  
 197  
 198  
 199  
 200  
 201  
 202  
 203  
 204  
 205  
 206  
 207  
 208  
 209  
 210  
 211  
 212  
 213  
 214  
 215  
 216  
 217  
 218  
 219  
 220  
 221  
 222  
 223  
 224  
 225  
 226  
 227  
 228  
 229  
 230  
 231  
 232  
 233  
 234  
 235  
 236  
 237  
 238  
 239  
 240  
 241  
 242  
 243  
 244  
 245  
 246  
 247  
 248  
 249  
 250  
 251  
 252  
 253  
 254  
 255  
 256  
 257  
 258  
 259  
 260  
 261  
 262  
 263  
 264  
 265  
 266  
 267  
 268  
 269  
 270  
 271  
 272  
 273  
 274  
 275  
 276  
 277  
 278  
 279  
 280  
 281  
 282  
 283  
 284  
 285  
 286  
 287  
 288  
 289  
 290  
 291  
 292  
 293  
 294  
 295  
 296  
 297  
 298  
 299  
 300  
 301  
 302  
 303  
 304  
 305  
 306  
 307  
 308  
 309  
 310  
 311  
 312  
 313  
 314  
 315  
 316  
 317  
 318  
 319  
 320  
 321  
 322  
 323  
 324  
 325  
 326  
 327  
 328  
 329  
 330  
 331  
 332  
 333  
 334  
 335  
 336  
 337  
 338  
 339  
 340  
 341  
 342  
 343  
 344  
 345  
 346  
 347  
 348  
 349  
 350  
 351  
 352  
 353  
 354  
 355  
 356  
 357  
 358  
 359  
 360  
 361  
 362  
 363  
 364  
 365  
 366  
 367  
 368  
 369  
 370  
 371  
 372  
 373  
 374  
 375  
 376  
 377  
 378  
 379  
 380  
 381  
 382  
 383  
 384  
 385  
 386  
 387  
 388  
 389  
 390  
 391  
 392  
 393  
 394  
 395  
 396  
 397  
 398  
 399  
 400  
 401  
 402  
 403  
 404  
 405  
 406  
 407  
 408  
 409  
 410  
 411  
 412  
 413  
 414  
 415  
 416  
 417  
 418  
 419  
 420  
 421  
 422  
 423  
 424  
 425  
 426  
 427  
 428  
 429  
 430  
 431  
 432  
 433  
 434  
 435  
 436  
 437  
 438  
 439  
 440  
 441  
 442  
 443  
 444  
 445  
 446  
 447  
 448  
 449  
 450  
 451  
 452  
 453  
 454  
 455  
 456  
 457  
 458  
 459  
 460  
 461  
 462  
 463  
 464  
 465  
 466  
 467  
 468  
 469  
 470  
 471  
 472  
 473  
 474  
 475  
 476  
 477  
 478  
 479  
 480  
 481  
 482  
 483  
 484  
 485  
 486  
 487  
 488  
 489  
 490  
 491  
 492  
 493  
 494  
 495  
 496  
 497  
 498  
 499  
 500  
 501  
 502  
 503  
 504  
 505  
 506  
 507  
 508  
 509  
 510  
 511  
 512  
 513  
 514  
 515  
 516  
 517  
 518  
 519  
 520  
 521  
 522  
 523  
 524  
 525

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
950 West Brushyfork Road  
Delta UT 84624  
USA

BILL TO:  
INTERMONTAINE POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
880 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9916  
USA

O: 02-22354 SO: 10085 SALESPERSON: Process Engineer S  
 HYP DATE: 02/04/02 SHIP VIA: UPS GROUND REAL F.O.B. DESTINATION

[illegible]

24.00BA 24.00 U699C0699R0699  
GRILL STRIPS  
Our P/N: 351001C06990599CUM  
ETA 10TH

22.00RA 22.00 U699C069B0590G  
SHILL STRIPS  
Our P/N: GS1001C069B0590CRM  
STA 13GE

30.00EA 30.00 US99C06880625  
SPILL STRIPS  
Our P/N: 36100R06880625CRM  
STA 14TR

30.00EA 30.00 U699C06880625  
SPILL STRIPS  
OUR P/N: 331001006880625CFM  
STA 14GB

160.0000 160 00 SPOOIPUS  
SPRINGS  
CUE P/N: SPOO1800

TRAINING SLIP: SL149  
PAGE: 4

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
930 West Brushwellman Road  
Delta UT 84524  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
650 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-3346  
USA

Q: 02-12354 SO: 15046 C/P: SALESPERSON, PROCESS ENGINEER, 3  
SHIP DATE: 02/08/02 SHIP VIA: UPS GROUND FPAL F.O.B: DESTINATION

[illegible]

62A 11-1375/62

SECRET

26.00 0625006030550

00110100

000

DATA LOSS

**IP7 005358**

## UNIFORM STRAIGHT BILL OF LADING

## T.J. POTTER TRUCKING, INC.

13985 Industry Ave., Becker, MN 55308 • (763) 261-5850 • Fax (763) 261-5844

Shipper's No.

Carrier

Agent's No.

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

From Duke EnergyDate 3/4/02at Moss Landing CA

the property described below, in apparent good order, except as noted (contents and conditions of contents of packages unknown), marked, consigned, and destined as shown below, which said company (the word company being substituted throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own railroad, waterline, highway route or routes, or within the territory of its highway operations, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his agents.

Consigned to Inter Mountain Power / Turbo Tech

Address

City DeltaState UT

Routing

Delivering Carrier TJ PotterVehicle or Car Initial 742/R6NSG No.

Collect On Delivery

\$ \_\_\_\_\_ and remit to: \_\_\_\_\_

C.O.D. charge ☐ Shipper  
to be paid by ☐ Consignee

No. Packages	HM	Street	City	State	Kind of Package, Description of Articles, Special Marks, and Exceptions	*Weight (Sub. to Correction)	Class or Rate	Check Column
1					8x10x10 Tool Box	5000		

Subject to Section 7 of Conditions of applicable Bill of Lading, if this statement is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

If charges are to be prepaid, write or stamp here: "To be Prepaid"

Received \$ \_\_\_\_\_  
to apply in prepayment of the charges on the property described herein.

Agent or Cashier

Per \_\_\_\_\_  
(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

\$ \_\_\_\_\_

†The Fibre Boxes used for this shipment conform to the specifications set forth in the box maker's certificate thereon and all other requirements of Consolidated Freight Classification

†This is to certify that the above named articles are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation

"Shipper's imprint in lieu of stamp; not a part of bill of lading approved by the Department of Transportation."

\*If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight"  
NOTE - Where the rate is dependent on value, shipper's are required to state specifically in writing the agreed or declared value of the property  
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \_\_\_\_\_ per \_\_\_\_\_

Shipper, Per \_\_\_\_\_

Agent, Per \_\_\_\_\_

Permanent address of shipper, \_\_\_\_\_

White Copy - Original

Yellow Copy - Shipping Order

IP7\_005359



2140 Westover Road - Chicopee, MA 01022-1057 Tel. (413) 593-0500 Fax (413) 593-3424

ORIGINAL

PLEASE REMIT TO:  
TurboCare  
P. O. Box 640848  
Pittsburg, PA 15264-0848

Invoice: 106333

Page: 1  
Date: 1/21/2002

INVOICE

Bill To:

INTERMOUNTAIN POWER SERVICE CORP.  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

Ship To:

INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

PO Number: 02-22354  
Packing Slip: 21100  
Sales Rep: Process Engineered Systems

Terms: Net 30  
SO #: 15086

F.O.B.: DESTINATION  
Ship Date: 1/21/2002  
Ship Via: BESTWAY GD PPAL

Quantity	Part Number/Description	Revision	Unit Price	Ext Price
1.00EA	LOT CHARGE CONVENTIONAL PACKING		12,800.00000EA	12,800.00

Qty. Ordered: 1.00  
Our Part: LOT CHARGE  
8 ROWS ( W/ SPRINGS)  
Millard County  
Miscellaneous Charges

Description  
UTAH SALES TAX 5.75% 736.00

Payment Schedule

Due Date  
2/20/2002

Total: 13,536.00

GOODS OR SERVICE ACCEPTED BY: PARTIAL BILLING

Order by Dave Spencer 6449

RECEIVED  
JAN 28 2002

IPSC ACCOUNTING

By: Ralph Newbury

Signed 2/4/02  
paid by vendor voucher.

VENDOR # 3001 REMIT TO #

VOUCHER #

AMT PAID \$

CHECK NO DUE DATE 2/7/02

GL 00-2776-402  
00-07718-0

RN

IP7\_005360

2140 Westover Road • Chicopee, MA 01022-1057  
Tel. 413-593-0500 • Fax 413-593-3424

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-9546  
USA

**IP7 005361**

**TurboCare®**

2140 Westover Road • Chicopee, MA 01022-1057  
Tel. 413-593-0500 • Fax 413-593-3424

PACKING SLIP: 21090  
PAGE: 2

SHIP TO:  
INTERMOUNTAIN POWER AGENCY  
Intermountain Generating Station  
850 West Brushwellman Road  
Delta UT 84624  
USA

BILL TO:  
INTERMOUNTAIN POWER SERVICE CORP  
ACCOUNTS PAYABLE  
850 WEST BRUSH WELLMAN ROAD  
DELTA UT 84624-1596  
USA

PO: 02-22354 SO: 15086 SALESPERSON: Process Engineered 3  
SHIP DATE: 01/19/02 SHIP VIA: CONSOLID PPAL F.O.B: DESTINATION

PLANNED QTY SHIPPED/BO PART NUMEER/DESCRIPTION/REV

Our P/N: PR1638B275L0668

N4G2

1.00EA

1.00 U841B275L0668

CONVENTIONAL PACKING

Our P/N: PR1638B275L0668 ✓

N4G3

1.00EA

1.00 U841B275L0668

CONVENTIONAL PACKING

Our P/N: PR1638B275L0668 ✓

N4G4

IP7\_005362



U W FREIGHT LINE, INC.  
2818 WEST PARKWAY BLVD.  
SALT LAKE CITY, UTAH 84119  
TELEPHONE (801) 906-3500


CONSIGNEE  
COPY

3

UTAW

REFER TO THIS NUMBER

QUIP. NUMBER	DATE	ORIGIN	INTERLINE PAYABLE	U W REVENUE	AMT. DUE U W	DESTINATION	INVOICE NUMBER
	01/24/2002	CC 01				11	02386222

CONSIGNEE INTERMOUNTAIN POWER AGEN INTERMOUNTAIN GEN STA 850 W BRUSH WELLSON RD DELTA UT 84624	SHIPPER'S NUMBER NS	CL PRO & DATE CFWY 657-061263 01/18/2002
	PRO NUMBER 02386222	 * 0 2 3 8 6 2 2 2 *
	PO:02-223554	

SHIPPER TUBROCARE 1310 SHERIDAN ST CHICOPEE MA 01022	BILL TO CFWY CONSOLIDATED FREIGHT 900004 P O BOX 4303 02-22354 PORTLAND OR 97208
---	---

NO. PCS.	HM	DESCRIPTION OF ARTICLES AND MARKS	WEIGHT (LBS.)	RATE	TOTAL CHARGES
1		SKD STC 8 CTNS MACHINE PRTS	796		
1		FSC			
		TOTAL	796		PREPAID

RECEIVED  
JAN 25 2002  
BY: [Signature] R/N

\*\* THANK YOU. We at U W FREIGHT LINE appreciate your business \*\*

LEAVE THIS COPY WITH CONSIGNEE

IP7\_005363



INTERMOUNTAIN POWER SERVICE CORP.

Delta, Utah 84624-9546 (435) 864-4414 - Purchasing FAX (435) 864-6678

VENDOR: TURBOCARE  
2140 WESTOVER ROAD  
CHICOPEE, MA 01022-1057

# PURCHASE ORDER

04 JAN 2002

VENDOR MUST SHOW P.O. NUMBER ON ALL INVOICES, BILL OF MATERIALS, AND ON PACKING LISTS IN EACH CONTAINER, TO INSURE PROMPT PAYMENT. CHARGES FOR TRANSPORTATION MUST BE SUPPORTED BY COPY OF FREIGHT BILL.

PURCHASE ORDER NO.	VENDOR CODE	REQUISITION NO
02-22354	3001	173417

\*\*\* SHIP TO \*\*\*  
INTERMOUNTAIN POWER SERVICE CORPORATION  
850 W. BRUSH WELLMAN RD.  
DELTA, UT 84624-9546

800-346-5462 OR 413-593-0500

CONFIRMING DO NOT DUPLICATE	NON CONFIRMING X	SHIP VIA BEST WAY	TERMS NET 30	FOB POINT DESTINATION F/A	1 PAGE OF 2	MAIL
-----------------------------	------------------	-------------------	--------------	---------------------------	-------------	------

## INTERMOUNTAIN POWER SERVICE CORPORATION'S STANDARD TERMS AND CONDITIONS ARE INCLUDED AS PART OF THIS AGREEMENT

QUANTITY ORDERED	UNIT	IPSC PART NO.	DESCRIPTION	ACCOUNT NUMBER	UNIT PRICE	EXTENSION
1	SV		LINE 1 PROVIDE ALL MATERIALS, SUPERVISION, LABOR, TOOLS, AND EQUIPMENT FOR VARIABLE CLEARANCE DIAPHRAGM AND REDUCED CLEARANCE SPILL STRIP INSTALLATION IN THE INTERMEDIATE PRESSURE TURBINE SECTION ON UNIT 2 DURING THE SPRING 2002 OUTAGE	00-2TGX-402 00-07718-0	179,340.00	179,340.00
1	SV		LINE 2 PROVIDE ALL MATERIALS, SUPERVISION, LABOR, TOOLS, AND EQUIPMENT FOR VARIABLE CLEARANCE DIAPHRAGM AND REDUCED CLEARANCE SPILL STRIP INSTALLATION IN THE INTERMEDIATE PRESSURE TURBINE SECTION ON UNIT 1 DURING THE SPRING 2003 OUTAGE  ATTENTION: BOB HOGAN/KRISTEN SCHROEDER  RCN/CLE	00-1TGX-402 00-07718-0	179,340.00	179,340.00

- Invoices and correspondence may be mailed to Intermountain Power Service Corporation, 850 West Brush Wellman Rd., Delta, Utah, 84624-9546.
- Acknowledgement is required if shipment will not be made within Five days.
- Mark packages or items with IPSC part number and/or P.O. Line number. Show number on invoice and packing slip.
- Vendor must furnish applicable material safety data sheets.
- Add to invoice all applicable federal taxes.

UTAH VENDORS ARE TO ADD TO THE INVOICE ALL APPLICABLE STATE, AND COUNTY TAXES.

OUT OF STATE VENDORS, LICENSED TO COLLECT UTAH TAXES. ARE TO ADD TAX OF 6%.

UTAH TAXES WILL BE ACCRUED BY IPSC FOR OUT OF STATE VENDORS NOT LICENSED TO COLLECT UTAH STATE TAX

BUYER

IP7\_005364



# PURCHASE ORDER

04 JAN 2002

VENDOR MUST SHOW P.O. NUMBER ON ALL INVOICES, BILL OF LADING, CORRESPONDENCE, AND ON PACKING LISTS IN EACH CONTAINER, TO INSURE PROMPT PAYMENT. CHARGES FOR TRANSPORTATION MUST BE SUPPORTED BY COPY OF FREIGHT BILL.

PURCHASE ORDER NO.	VENDOR CODE	REQUISITION NO
02-22354	3001	173417

\*\*\* SHIP TO \*\*\*  
INTERMOUNTAIN POWER SERVICE CORPORATION  
850 W. BRUSH WELLMAN RD.  
DELTA , UT 84624-9546

800-346-5462 OR 413-593-0500

CONFIRMING DO NOT DUPLICATE	NON CONFIRMING X	SHIP VIA BEST WAY	TERMS NET 30	FOB POINT DESTINATION F/A	2 PAGE OF 2	MAIL
-----------------------------	------------------	-------------------	--------------	---------------------------	-------------	------

## INTERMOUNTAIN POWER SERVICE CORPORATION'S STANDARD TERMS AND CONDITIONS ARE INCLUDED AS PART OF THIS AGREEMENT

QUANTITY ORDERED	UNIT	IPSC PART NO.	DESCRIPTION	ACCOUNT NUMBER	UNIT PRICE	EXTENSION
			<p>**NOTE: TOTAL COST INCLUDES OPTION III, PARAGRAPH 1 OF VENDOR'S QUOTE, FOR AN ADDITIONAL \$9,600 PER UNIT FOR UPGRADED SPE COATED SPILL STRIPS FOR STAGES 9 THROUGH 14**</p> <p>**NOTE: THE ATTACHED REVISED ADDITIONAL GENERAL CONDITIONS, PART E, DIVISION E2, OF SPECIFICATIONS 45556 ARE MADE A PART OF THIS PURCHASE ORDER BY REFERENCE HEREIN**</p> <p>***SERVICE CONTRACT TERMS AND CONDITIONS (TC-100'S) ARE INCORPORATED IN THIS PURCHASE ORDER BY REFERENCE***</p> <p>*****ATTENTION IPSC WAREHOUSE***** THIS ORDER IS FOR A SERVICE AND NO MATERIAL WILL BE RECEIVED</p>			
			DATE REQUIRED 02/21/02		TOTAL COST	358,680.00

- Invoices and correspondence may be mailed to Intermountain Power Service Corporation, 850 West Brush Wellman Rd., Delta, Utah, 84624-9546.
- Acknowledgement is required if shipment will not be made within Five days.
- Mark packages or items with IPSC part number and/or P.O. Line number. Show number on invoice and packing slip.
- Vendor must furnish applicable material safety data sheets.
- Add to invoice all applicable federal taxes.

UTAH VENDORS ARE TO ADD TO THE INVOICE ALL APPLICABLE STATE, AND COUNTY TAXES.

OUT OF STATE VENDORS, LICENSED TO COLLECT UTAH TAXES. ARE TO ADD TAX OF 6%.

UTAH TAXES WILL BE ACCRUED BY IPSC FOR OUT OF STATE VENDORS NOT LICENSED TO COLLECT UTAH STATE TAX

RALPH NEWBERRY 435-864-4414

BUYER

REVIEWED BY S. CHAPMAN

IP7\_005365

# IGS01-17 IP TURBINE RETRACTABLE PACKINGS - BID EVALUATION

Bid Requirments	General Electric - Retractable Packings	Steam & Gas - TSI Sensitized Packings	Turbocare - Retractable Packings	Turbocare - Retractable Packings with Brush Seals
U2 Shaft Packing	\$214,895	\$164,610	\$108,100	\$210,100
U2 Spill Strips	\$67,353	\$6,121	\$22,540	\$32,140
U2 N1 & N2 Packing	\$95,869	\$49,506	\$39,100	\$39,100
U2 Total Installation	\$378,117	\$220,237	\$169,740	\$281,340
U1 Shaft Packing	\$214,895	\$164,610	\$108,100	\$210,100
U1 Spill Strips	\$67,353	\$6,121	\$22,540	\$32,140
U1 N1 & N2 Packing	\$95,869	\$49,506	\$39,100	\$39,100
U1 Total Installation	\$378,117	\$220,237	\$169,740	\$281,340
Project Total	\$756,234	\$440,474	\$339,480	\$562,680
Project Budget	\$688,000	\$688,000	\$688,000	\$688,000
Estimated Annual Fuel Savings	-	\$698,984	\$626,555	\$710,543
PV Annual Fuel Savings	-	\$4,410,589	\$3,953,562	\$4,483,526
Benefit / Cost Ratio	-	10.01	11.65	7.97

PV Annual Fuel Savings based on 3% O&M escalation, 8% discount factor, 8 year project life

IP7\_005366

**FAX****TurboCare**  
Demag Delaval Services**Chicopee Operations**

2140 Westover Road, Chicopee, MA 01022

Tel: (413) 593-0500 Fax: (413) 593-3424

To: Ralph Newbury

From: Kristen M. Schroeder

Fax: 435-864-8676

0944 - 1/3/02

Pages: 5

Phone: 435-864-4414

Date: 12/21/01

Re: Bid Spec Terms

CC: Rick Day, Bob Hogan

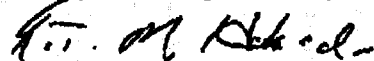
Good Afternoon Ralph,

Here are the agreed to exceptions to the bid spec from 1994.

Also, we will agree to FOB Delta, Utah and will waive the 15% adder for shipment.

Please let me know if you have any questions or concerns.

Thank you and happy holidays!



Kristen M. Schroeder

**www.turbocare.com**

IP7\_005367



EXCEPTIONS TO BID SPECIFICATION 45172

- o IMO Standard Conditions of Sale, Tab 3, shall apply.
- o IMO/Quabbin shall not be responsible for any failure of the High Pressure Turbine to achieve apparent (as-measured) enthalpy-drop efficiency that is the result of main steam inlet snout leakage UNLESS Quabbin patented Articulated Snout Rings are installed.
- o With reference to Part E - Division E2, page E2-2, paragraph 3- "Guarantee": each individual turbine project (unit 1 and unit 2) must be guaranteed independently. If unit 1 fails to meet guaranteed efficiency; in accordance with Part 3 - Division E2, page E2-1, paragraph 1; then the damages will be assessed at ten percent (10%) of the fraction of the contract that applies to unit 1. Likewise, if unit 2 fails to meet guaranteed efficiency, then the damages will be assessed at 10% of the fraction of the contract price that applies to unit 2.
- o Payment Terms: Payment for the portion of the contract which applies to unit 2 shall be due thirty (30) days after completion of unit 2 outage and unit 2 performance tests, but not later than forty-five days after completion of unit 2 packing installation.  
Payment for the balance of the contract price shall be due in full thirty (30) days after completion of unit 1 outage and unit 1 performance tests, but not later than 270 days after placement of initial order.

**FAX****TurboCare**  
Demag Delaval Services**Chicopee Operations**

2140 Westover Road, Chicopee, MA 01022

Tel: (413) 593-0500 Fax: (413) 593-3424

To: Ralph Newbury

From: Kristen M. Schroeder

Fax: 435-864-6678

Pages: 5

Phone: 435-864-4414

Date: 12/21/01

Re: Bid Spec Terms

CC: Rick Day, Bob Hogan

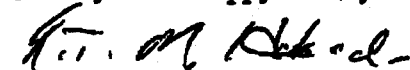
Good Afternoon Ralph,

Here are the agreed to exceptions to the bid spec from 1994.

Also, we will agree to FOB Delta, Utah and will waive the 15% adder for shipment.

Please let me know if you have any questions or concerns.

Thank you and happy holidays!



Kristen M. Schroeder

**www.turbocare.com**

IP7\_005369



EXCEPTIONS TO BID SPECIFICATION 45172

- o IMO Standard Conditions of Sale, Tab 3, shall apply.
- o IMO/Quabbin shall not be responsible for any failure of the High Pressure Turbine to achieve apparent (as-measured) enthalpy-drop efficiency that is the result of main steam inlet snout leakage UNLESS Quabbin patented Articulated Snout Rings are installed.
- o With reference to Part E - Division E2, page E2-2, paragraph 3- "Guarantee": each individual turbine project (unit 1 and unit 2) must be guaranteed independently. If unit 1 fails to meet guaranteed efficiency; in accordance with Part 3 - Division E2, page E2-1, paragraph 1; then the damages will be assessed at ten percent (10%) of the fraction of the contract that applies to unit 1. Likewise, if unit 2 fails to meet guaranteed efficiency, then the damages will be assessed at 10% of the fraction of the contract price that applies to unit 2.
- o Payment Terms: Payment for the portion of the contract which applies to unit 2 shall be due thirty (30) days after completion of unit 2 outage and unit 2 performance tests, but not later than forty-five days after completion of unit 2 packing installation.  
Payment for the balance of the contract price shall be due in full thirty (30) days after completion of unit 1 outage and unit 1 performance tests, but not later than 270 days after placement of initial order.

**TurboCare**

Specification  
45556

Variable  
Clearance  
Packing  
and  
Reduced  
Clearance  
Spill Strips



**Intermountain Power Service Corporation**

***TurboCare*<sup>®</sup> Proposal 18028**  
**November 30, 2001**

IP7\_005371

**PART E - DIVISION E2****ADDITIONAL GENERAL CONDITIONS**

1. **Performance:** Work completed during the outage on the high-pressure turbine section shall be guaranteed to produce an improvement in section efficiency equal to eighty (80) percent of recovered losses. The recovered losses shall be based on the calculated difference in steam path efficiency, as agreed upon by the Contractor and IPSC, between an opening and closing steam path audit.

IPSC will complete pre-outage performance tests to determine the performance level of the high-pressure turbine section. After the high-pressure section is opened, an opening steam path audit will be conducted by IPSC. The performance loss due to steam path deterioration will be determined by calculation. The types of deterioration that will be considered are, but not limited to, solid particle erosion, deposits, increased clearances, foreign object damage, and component surface roughness. Actual steam path repairs will be determined by IPSC following evaluation of the opening steam path audit.

Prior to closing the high-pressure section, a closing steam path audit will be conducted by IPSC to determine the recovered losses attributable to outage maintenance activities. The recovered losses will be calculated and agreed upon by the Contractor and IPSC.

2. **Performance Tests:** IPSC will conduct pre and post-outage performance tests with the intention of determining compliance with the performance guarantees. The tests will be conducted using plant instrumentation calibrated by IPSC, and by using design calculations agreed upon by the Contractor and IPSC where measurements are impractical. The tests will be conducted at valve wide open and corrected to design throttle conditions.

The general methods outlined in the ASME test code will be used as a guide for test procedures; however, code technicalities shall not void the validity of these tests. The Contractor shall have the right to witness the tests.

In addition to the above test procedures, IPSC may utilize a third party contractor to conduct ASME Performance Test Code tests (ASME PTC-6S) for the pre and post-outage testing. IPSC further reserves the right to use a third party contractor to conduct the opening and closing steam path audits. The results of the performance tests and steam path audits shall then be binding on the parties of this Contract.

All reasonable effort will be made to conduct the pre-outage performance tests within four (4) weeks before the start of the outage and the post-outage test within four (4) weeks of the initial startup following the outage.

3. **Guarantee:** The Contractor shall guarantee that the high-pressure turbine section shall meet the performance conditions as set forth in these Specifications.

If the field tests indicate that such performance conditions are not met, then IPSC shall be entitled to damages, excluding consequential damages, for such deficient performance. The damages for failing to meet the performance conditions as set forth in these Specifications shall be ten (10) percent of the Contract amount. It is agreed between the Contractor and IPSC that it would be impossible or extremely difficult to

Spec. 45172**PART B - DIVISION B2****ADDITIONAL GENERAL CONDITIONS**

1. **Performance:** Work completed during the outage on the high pressure turbine section shall be guaranteed to produce an improvement in section efficiency equal to 80% of recovered losses. The recovered losses will be based on the calculated difference in steam path efficiency, as agreed upon by the Contractor and IPSC, between an opening and closing steam path audit.

IPSC will complete preoutage performance tests to determine the performance level of the high pressure turbine section. After the high pressure section is opened, an opening steam path audit will be conducted by IPSC. The performance loss due to steam path deterioration will be determined by calculation. The types of deterioration that will be considered are, but not limited to, solid particle erosion, deposits, increased clearances, foreign object damage, and component surface roughness. Actual steam path repairs will be determined by IPSC following evaluation of the opening steam path audit.

Prior to closing the high pressure section, a closing steam path audit will be conducted by IPSC to determine the recovered losses attributable to outage maintenance activities. The recovered losses will be calculated and agreed upon by the Contractor and IPSC.

2. **Performance Tests:** IPSC will conduct pre and post-outage performance tests with the intention of determining compliance with the performance guarantees. The tests will be conducted using plant instrumentation calibrated by IPSC, and by using design calculations agreed upon by the Contractor and IPSC where measurements are impractical. The tests will be conducted at VWO and corrected to design throttle conditions.

The general methods outlined in the ASME test code will be used as a guide for test procedures; however, code technicalities shall not void the validity of these tests. The Contractor shall have the right to witness the tests.

In addition to the above test procedures, IPSC may utilize a third party contractor to conduct ASME Performance Test Code tests (ASME PTC-6S) for the pre and post-outage testing. IPSC further reserves the

Spec. 45172

## DIVISION E2

## ADDITIONAL GENERAL CONDITIONS

right to use a third party contractor to conduct the opening and closing steam path audits. The results of the performance tests and steam path audits shall then be binding on the parties of this Contract.

All reasonable effort will be made to conduct the pre-outage performance tests within four (4) weeks before the start of the outage and the post-outage test within four (4) weeks of the initial startup following the outage.

3. Guarantee: The Contractor shall guarantee that the high pressure turbine section shall meet the performance conditions as set forth in these specifications.

If the field tests indicate that such performance conditions are not met, then IPSC shall be entitled to damages, excluding consequential damages, for such deficient performance. The damages for failing to meet the performance conditions as set forth in these specifications shall be 10% of the contract amount. It is agreed between the Contractor and IPSC that it would be impossible or extremely difficult to determine actual damages for failing to meet the guaranteed performance and that the above agreed amounts are reasonable liquidated damages and do not constitute a penalty.

The Contractor shall repair or replace, f.o.b. contract delivery point, all defective materials and workmanship.

4. Payment: Payment will be made within thirty (30) calendar days after completion of outage and performance tests, and receipt of the invoice.
5. Regulations, Permits, Licenses, and Warrants: The Contractor shall comply with all applicable federal, state, and local regulations pertaining to safety including, but not limited to, Federal and State OSHA, as said regulations relate to this Contract. In addition, the Contractor shall assure that all permits, licenses, and warrants relating to the Contract be acquired.

Spec. 45172

DIVISION E2

ADDITIONAL GENERAL CONDITIONS

6. Letters to IPSC: All inquiries relating to these specifications prior to award of Contract shall be addressed to the Purchasing Manager.

All letters pertaining to invoices shall be addressed in accordance with Article 3 of this Division.

After award, all letters pertaining to performance of the Contract shall be addressed as follows:

Mr. S. Gale Chapman  
President and Chief Operations Officer  
Intermountain Power Service Corporation  
850 West Brush Wellman Road  
Delta, UT 84624-9546

Attention: Contract Administrator

Regarding Contract No. \_\_\_\_\_



**TurboCare, Inc.**  
2140 Westover Road  
Chicopee, MA 01022-1057  
Tel. (413) 593-0500  
Fax (413) 593-3424

November 30, 2001

Ralph C. Newberry, C.P.M.  
Intermountain Power Service Corporation  
Purchasing Section  
850 West Brush Wellman Road  
Delta, UT 84624-9546

**RE: Specification 45556**  
**Variable Clearance Packing and Reduced Clearance Spill Strips.**  
***TurboCare* Quotation No. 18028**

Dear Mr. Newberry,

We thank IPSC for the referenced inquiry and are pleased to submit the enclosed for your consideration. Also provided is our Quotation 18028A, an enhancement to the current RFP configuration, for *TurboCare* Retractable Brush Seals, High Efficiency Seal Rings and Upgraded Spill Strips.

We trust that our offer will be of interest to you and look forward to receiving your further instructions. Please do not hesitate to contact the undersigned at extension 344 or our local sales representative Rick Day at 303-366-8504, if you should have any questions or need further information.

Thank you in advance for your consideration of *TurboCare*.

Sincerely,

Bob Hogan  
Product Manager  
Chicopee Operation  
email: Rhogan@chicopee.turbocare.com

ds

cc: Rick Day – Processed Engineered Systems  
Dave Stenson – *TurboCare*, Perris

This quotation shall be void unless accepted within the time period stipulated herein from date of quotation shown above; meanwhile being subject to change or withdrawal unless otherwise stated above. All orders received are subject to acceptance by our home office. Acceptance of this quotation is limited to the general terms and conditions set forth on the reverse side hereof, and issuance of a purchase order will be considered an acceptance if your purchase order agrees with the description of the items offered, the price, and the delivery schedule (D)

**IP7\_005376**

## INTRODUCTION TO *TURBOCARE*

***TurboCare Inc*** is part of a multi billion dollar corporation and has been a leader in design, engineering, manufacturing and repairing steam and gas turbomachinery equipment for over three decades. Our commitment to customers is visibly underscored.

To further demonstrate our commitment to the turbomachinery industry, ***TurboCare*** has dramatically strengthened its ability to perform detailed failure analysis and redesign of steam turbine rotating and stationary parts. In fact, there is no question that we are currently a worldwide leader in this area. A team of engineers with over 100 years of accumulated experience on steam turbine analysis and design is focused full time on failure analysis and redesign.

In addition, we offer services such as blading, advanced design bearings, couplings, valve components, high efficiency improvement products like our patented retractable packing rings, retractable brush seals and inlet seal rings, as well as major diaphragm repairs, casing and advanced rotor welding repairs and both operating and low speed balancing.

***TurboCare's*** expertise is in offering innovative and flexible solutions to turbomachinery maintenance users. This expertise, along with our ability to respond to a diverse assortment of needs in a rapid manner, coupled with our ISO 9001 certification, could result in a lower cost of ownership.

Pricing is based upon quantity and lead-time provided. Delivery is subject to prior sale. All items are quoted in US Dollars. All parts will be shipped Ex-works Chicopee, MA, freight collect. Pre-paid and add shipments are available at cost plus fifteen percent (15%).

This quotation is valid for thirty (30) days unless extended in writing by the undersigned. Our quotation is conditioned on acceptance of *TurboCare* Standard Conditions of Sale (FSRevised91701-D). All payments shall be made without deduction or set-off. Terms of payment are net thirty (30) days from scheduled date of shipment. A late charge of one and one half (1- ½%) per month (but not in excess of the lawful maximum) will be imposed on all past due balances, prorated on a daily basis for each day that payment is due.

**SAVINGS ANALYSIS – TURBOCARE RETRACTABLE PACKING**

The following estimates the potential savings associated with installing Retractable Packing in your IP Cylinders.

<b><u>IP Unit #1</u></b>		<b><u>IP Unit #2</u></b>	
Δ kW	2751	Δ kW	2741
Δ Heat Rate	31.76 BTU/kW-HR	Δ Heat Rate	31.65 BTU/kW-HR
Est Annual Fuel Savings	\$307,986.	Est Annual Fuel Savings	\$306,920.
Annual Generation Benefit	\$433,777.	Annual Generation Benefit	\$432,200.

\$ 313,821 /yr

\$ 312,734 /yr

**PROPOSAL**

The undersigned hereby proposes to furnish and deliver **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003** to the Intermountain Power Service Corporation in accordance with **Specifications 45556**.

The undersigned agrees, upon the acceptance of this Proposal, to enter into and execute a Contract consisting of the documents identified in Part D of said Specifications for furnishing and delivering the items embraced in the accepted Proposal at the prices named in the accompanying Proposal Schedule.

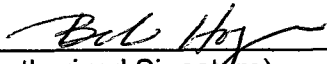
The undersigned declares under penalty of perjury that such Proposal is genuine, and not sham or collusive, nor made in the interest or in behalf of any person or entity not herein named, and that the bidder has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding, and that the bidder has not in any manner sought by collusion to secure for itself an advantage over any other bidder.

I declare under penalty of perjury under the laws of the state of Utah that the foregoing is true and correct.

Date: November 30, 2001

Bidder: TurboCare, Inc.

Address: 2140 Westover Road  
Chicopee, MA 01022

Signed By:   
(Authorized Signature)

Print Name: Bob Hogan

Title: Product Manager

**PART C - DIVISION C2****BIDDING DOCUMENTS - PROPOSAL SCHEDULE**

Proposal is hereby made to furnish and deliver to IPSC all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003, f.o.b. Delta, Utah, in accordance with Specifications 45556 and bidding documents, pages C1-1 and C2-1 through C2-7.

Prices: The price or prices shall be firm.

Cash Terms: A discount for prompt payment is offered of \_\_\_\_\_ percent for Contract payments made within \_\_\_\_\_ calendar days after date of acceptance or delivery and receipt of invoice.

Taxes: The foregoing quoted prices are exclusive of all applicable sales and use taxes.

Manufacturer: TurboCare, Inc.

Location of Point of Manufacture: Chicopee, MA

Form of Business Organization: The bidder shall state below the form of its business organization.

Bidder is: TurboCare, Inc. (Corporation, ~~Partnership, Limited Partnership, Individual~~)

If a partnership, the bidder shall state below the names of the partners. If a corporation, the bidder shall state below the names of the president and of the secretary.

Person to Contact: Should IPSC desire information concerning this Proposal, please contact:

Name: Bob Hogan Telephone No: 413-593-0500 X 344

Address: 2140 Westover Road Chicopee, MA 01022

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**A. Unit 2 Intermediate-Pressure Turbine Shaft Packing**

**1. Materials**

				<b>Bid</b>	
<b>LOCATION</b>	<b>OEM PART #</b>	<b>DESIGN CLEARANCE</b>	<b>TYPE</b>	<b>RADIAL CLEARANCE</b>	<b>CONTRACT PRICE</b>
N3 G3	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N3 G4	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N3 G5	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N3 G6	U841B275L1434	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G1	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G2	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G3	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G4	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
Stage 9 TE	U831B275D1046	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 9 GE	U831B275D0668	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 10 TE	U831B275B0846	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 10 GE	U831B275B0568	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 11 TE	U831B275B0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 11 GE	U831B275B0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 12 TE	U831B275B0746	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 12 GE	U831B275B0568	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 13 TE	U841B275L0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 13 GE	U841B275L0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 14 TE	U841B275L0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>
Stage 14 GE	U841B275L0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.</u>

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine shaft packing installation.

\$25,700.

**UNIT 2 IP SHAFT PACKING SUBTOTAL (Materials and Labor)**

\$108,100.

**Note:** Installation of packing rings requires holders to be round within .050 TIR. Distortion greater than this may require additional machining which would be billed on a time and material basis per the attached Field Service Rates (QCM-58)

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**B. Unit 2 Intermediate-Pressure Turbine Spill Strips**

**1. Materials**

LOCATION	OEM PART #	DESIGN CLEARANCE	Bid		
			TYPE	RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 11 TE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 11 GE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 12 TE	U699C071S0565	0.060"	Straight	.045	\$ 1,170.00
Stage 12 GE	U699C071B0565	0.060"	Straight	.045	\$ 1,170.00
Stage 13 TE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 13 GE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 14 TE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00
Stage 14 GE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation.

\$ 4,000.00

UNIT 2 IP SPILL STRIP SUBTOTAL (Materials and Labor)

\$22,540.00

*Spillings*

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING 7 SPILL STRIPS**

**C. Unit 2 High-Pressure Turbine Shaft End Packing Upgrade**

**1. Materials**

				<b>Bid</b>		
<b>LOCATION</b>		<b>OEM PART #</b>	<b>DESIGN CLEARANCE</b>	<b>TYPE</b>	<b>RADIAL CLEARANCE</b>	<b>CONTRACT PRICE</b>
N1	G4	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1	G5	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1	G6	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1	G7	U841B262L0768	.015"	Variable	.015	\$ 5,800.00
N2	G6	U831B305D1234	.015"	Variable	.015	\$ 5,800.00
N2	G7	U831B305D1234	.015"	Variable	.015	\$ 5,800.00

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade.

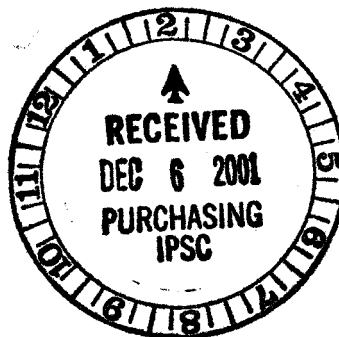
\$ 4,300.00

UNIT 2 HP SHAFT END PACKING SUBTOTAL (Materials and Labor)

\$39,100.00

**UNIT 2 TOTAL UNIT PACKING AND SPILL STRIPS  
(Material and Labor)**

\$169,740.00



\$ 108,100 IS  
 \$ 102,000 Brush seals  
 \$ 210,100 w Brush seals  
  
 Spill strips  
 \$ 22,540 standard  
 \$ 9,600 SPE coated  
 \$ 32,140

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**D. Unit 1 Intermediate-Pressure Turbine Shaft Packing**

**1. Materials**

			<b>Bid</b>		
<b>LOCATION</b>	<b>OEM PART #</b>	<b>DESIGN CLEARANCE</b>	<b>TYPE</b>	<b>RADIAL CLEARANCE</b>	<b>CONTRACT PRICE</b>
N3 G3	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N3 G4	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N3 G5	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N3 G6	U841B275L1434	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4 G1	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4 G2	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4 G3	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4 G4	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
Stage 9 TE	U831B275D1046	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 9 GE	U831B275D0668	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 10 TE	U831B275B0846	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 10 GE	U831B275B0568	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 11 TE	U831B275B0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 11 GE	U831B275B0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 12 TE	U831B275B0746	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 12 GE	U831B275B0568	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 13 TE	U841B275L0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 13 GE	U841B275L0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 14 TE	U841B275L0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 14 GE	U841B275L0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine shaft packing installation.

\$25,700.00

UNIT 1 IP SHAFT PACKING SUBTOTAL (Materials and Labor)

\$108,100.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**E. Unit 1 Intermediate-Pressure Turbine Spill Strips**

**1. Materials**

LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	Bid	
				RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 11 TE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 11 GE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 12 TE	U699C071S0565	0.060"	Straight	.045	\$ 1,170.00
Stage 12 GE	U699C071B0565	0.060"	Straight	.045	\$ 1,170.00
Stage 13 TE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 13 GE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 14 TE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00
Stage 14 GE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation.

\$ 4,000.00

UNIT 1 IP SPILL STRIP SUBTOTAL (Materials and Labor)

\$22,540.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**F. Unit 1 High-Pressure Turbine Shaft End Packing Upgrade**

**1. Materials**

				<b>Bid</b>		
<b>LOCATION</b>		<b>OEM PART #</b>	<b>DESIGN CLEARANCE</b>	<b>TYPE</b>	<b>RADIAL CLEARANCE</b>	<b>CONTRACT PRICE</b>
N1	G4	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1	G5	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1	G6	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1	G7	U841B262L0768	.015"	Variable	.015	\$ 5,800.00
N2	G6	U831B305D1234	.015"	Variable	.015	\$ 5,800.00
N2	G7	U831B305D1234	.015"	Variable	.015	\$ 5,800.00

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade.

\$ 4,300.00

**UNIT 1 HP SHAFT END PACKING SUBTOTAL (Materials and Labor)**

\$39,100.00

**UNIT 1 TOTAL UNIT PACKING AND SPILL STRIPS  
(Material and Labor)**

\$169,740.00

**Intermountain Generating Station - UNIT 2**

Intermediate Pressure Turbine

Interstage Packings

Opening clearances - 11/5/93

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	kW Loss
IP - Tend	8																
IP - Tend	9	0.017	0.041	0.345	0.335	0.323	0.344	0.354	0.314	0.321	0.316	0.047	0.029	0.057	0.054	0.049	80.0
IP - Tend	10	0.029	0.030	0.346	0.339	0.330	0.341	0.340	0.320	0.326	0.324	0.039	0.030	0.044	0.043	0.040	52.5
IP - Tend	11	0.029	0.023	0.339	0.339	0.341	0.347	0.341	0.316	0.317	0.304	0.036	0.026	0.037	0.039	0.041	52.5
IP - Tend	12	0.019	0.025	0.354	0.348	0.352	0.360	0.362	0.312	0.339	0.323	0.036	0.022	0.035	0.050	0.039	52.5
IP - Tend	13	0.024	0.040	0.292	0.298	0.296	0.323	0.303	0.295	0.276	0.247	0.038	0.032	0.044	0.033	0.045	57.5
IP - Tend	14	0.035	0.034	0.306	0.301	0.307	0.317	0.316	0.296	0.278	0.266	0.047	0.035	0.053	0.047	0.054	80.0
Averages												0.041	0.029	0.045	0.044	0.044	
																<b>Total Loss</b>	<b>382.0</b>

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	
IP - Gend	8																
IP - Gend	9	0.030	0.033	0.356	0.364	0.356	0.352	0.358	0.349	0.349	0.351	0.034	0.032	0.036	0.032	0.037	47.5
IP - Gend	10	0.020	0.039	0.355	0.358	0.351	0.339	0.345	0.351	0.337	0.336	0.033	0.030	0.035	0.025	0.042	45.0
IP - Gend	11	0.035	0.030	0.349	0.361	0.342	0.342	0.354	0.300	0.306	0.326	0.049	0.033	0.060	0.054	0.050	85.0
IP - Gend	12	0.022	0.028	0.350	0.333	0.359	0.360	0.354	0.328	0.331	0.342	0.032	0.025	0.032	0.047	0.026	42.5
IP - Gend	13	0.033	0.027	0.297	0.295	0.294	0.290	0.309	0.290	0.261	0.267	0.045	0.030	0.056	0.041	0.055	75.0
IP - Gend	14	0.032	0.043	0.298	0.291	0.308	0.303	0.302	0.267	0.269	0.281	0.048	0.038	0.049	0.059	0.046	82.5
Averages												0.040	0.031	0.045	0.043	0.043	
																<b>Total Loss</b>	<b>377.5</b>

\* The above kWLoss is based on the clearance as found on the above chart to the difference between OEM design clearance (.015).

<b>Total IP Packing Loss</b>	<b>759.5 kW</b>
------------------------------	-----------------

**Intermountain Generating Station - UNIT 2**

Intermediate Pressure Turbine

Radial Spill Strips

Opening clearances - 11/5/93

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	kW Loss
IP - Tend	8																
IP - Tend	9	0.063	0.087	0.237	0.207	0.243	0.249	0.236	0.239	0.225	0.218	0.080	0.075	0.078	0.089	0.078	108.0
IP - Tend	10	0.054	0.066	0.244	0.252	0.232	0.240	0.242	0.232	0.224	0.226	0.067	0.060	0.075	0.061	0.070	76.8
IP - Tend	11	0.050	0.058	0.250	0.243	0.251	0.248	0.245	0.224	0.199	0.204	0.069	0.054	0.077	0.068	0.076	81.6
IP - Tend	12	0.057	0.074	0.242	0.243	0.233	0.242	0.251	0.206	0.211	0.218	0.081	0.066	0.090	0.088	0.082	86.4
IP - Tend	13	0.056	0.071	0.244	0.243	0.244	0.246	0.245	0.211	0.207	0.229	0.074	0.064	0.083	0.081	0.071	69.6
IP - Tend	14	0.066	0.076	0.233	0.249	0.246	0.267	0.258	0.219	0.211	0.193	0.082	0.071	0.088	0.083	0.087	88.8
Averages												0.075	0.065	0.082	0.078	0.077	
																<b>Total Loss</b>	<b>511.2</b>

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	kW Loss
IP - Gend	8																
IP - Gend	9	0.084	0.072	0.225	0.223	0.249	0.246	0.246	0.240	0.222	0.231	0.078	0.078	0.078	0.082	0.075	103.0
IP - Gend	10	0.055	0.073	0.231	0.257	0.235	0.243	0.240	0.257	0.253	0.243	0.055	0.064	0.056	0.043	0.057	48.0
IP - Gend	11	0.061	0.055	0.254	0.243	0.255	0.247	0.255	0.196	0.194	0.196	0.083	0.058	0.088	0.093	0.091	115.2
IP - Gend	12	0.066	0.065	0.244	0.233	0.249	0.262	0.246	0.236	0.238	0.231	0.068	0.066	0.067	0.076	0.064	55.2
IP - Gend	13	0.068	0.081	0.244	0.238	0.257	0.242	0.234	0.239	0.243	0.237	0.072	0.075	0.064	0.075	0.074	64.8
IP - Gend	14	0.065	0.075	0.244	0.26	0.258	0.237	0.236	0.198	0.209	0.225	0.077	0.070	0.077	0.081	0.079	76.8
Averages												0.072	0.068	0.071	0.075	0.073	
																<b>Total Loss</b>	<b>463.0</b>

\* The above Kw Loss is based on the clearance as found on the above chart to the difference between OEM design clearance (.050 -.060).  
The above calculation is based on reducing the clearance on spillstrips by .015.

<b>Spill Strip Total Loss</b>	<b>974.2 kW</b>
-------------------------------	-----------------

**Intermountain Generating Station - UNIT 2**

Intermediate Pressure Turbine

End Packings

Opening clearances - 11/5/93

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N3	1	0.036	0.039	0.293	0.293	0.309	0.293	0.299	0.291	0.284	0.300	0.038	0.038	0.037	0.042	0.037
N3	2	0.029	0.025	0.298	0.289	0.314	0.314	0.294	0.281	0.277	0.271	0.031	0.027	0.028	0.038	0.031
N3	3	0.031	0.027	0.301	0.291	0.308	0.300	0.299	0.297	0.272	0.285	0.035	0.029	0.039	0.035	0.037
N3	4	0.025	0.025	0.298	0.305	0.303	0.298	0.307	0.296	0.286	0.291	0.030	0.025	0.033	0.027	0.033
Averages												0.033	0.027	0.033	0.033	0.033

**Total Loss 462 kW**

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N4	1	0.033	0.031	0.285	0.282	0.281	0.298	0.298	0.291	0.277	0.281	0.037	0.032	0.045	0.037	0.034
N4	2	0.030	0.035	0.295	0.286	0.287	0.297	0.309	0.288	0.273	0.299	0.043	0.033	0.055	0.048	0.037
N4	3	0.027	0.029	0.310	0.297	0.292	0.300	0.309	0.278	0.272	0.283	0.045	0.028	0.056	0.050	0.046
N4	4	0.029	0.023	0.301	0.307	0.302	0.301	0.307	0.280	0.279	0.296	0.033	0.026	0.040	0.037	0.032
Averages												0.039	0.030	0.049	0.043	0.037

**Total Loss 546 kW**

\* The above kW Loss is based on the clearance as found on the above chart to the difference between OEM design clearance (.015).

**Total N Gland Loss 1008 kW**

IP7\_005389

**Intermountain Generating Station - UNIT 1**

Intermediate Pressure Turbine

Interstage Packings

Opening clearances - 4/12/94

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	kW Loss
IP - Tend	8																
IP - Tend	9	0.038	0.034	0.333	0.336	0.339	0.359	0.348	0.319	0.307	0.314	0.045	0.036	0.054	0.049	0.040	76.8
IP - Tend	10	0.025	0.033	0.356	0.365	0.351	0.353	0.347	0.325	0.315	0.318	0.039	0.029	0.048	0.036	0.045	60.0
IP - Tend	11	0.028	0.028	0.311	0.310	0.332	0.337	0.341	0.304	0.305	0.300	0.037	0.028	0.036	0.047	0.036	55.0
IP - Tend	12	0.032	0.021	0.348	0.356	0.337	0.344	0.331	0.305	0.307	0.323	0.035	0.027	0.044	0.036	0.033	50.0
IP - Tend	13	0.030	0.027	0.292	0.285	0.291	0.284	0.284	0.237	0.234	0.238	0.048	0.029	0.054	0.056	0.056	82.5
IP - Tend	14	0.047	0.039	0.290	0.298	0.289	0.292	0.293	0.246	0.235	0.238	0.062	0.043	0.073	0.063	0.070	47.0
Averages												0.044	0.032	0.051	0.048	0.046	
<b>Total Loss</b>																	<b>369.5</b>

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	kW Loss
IP - Gend	8																
IP - Gend	9	0.032	0.040	0.330	0.326	0.334	0.325	0.352	0.309	0.295	0.310	0.054	0.036	0.063	0.060	0.060	97.5
IP - Gend	10	0.022	0.045	0.337	0.340	0.343	0.344	0.355	0.330	0.315	0.321	0.044	0.034	0.050	0.044	0.047	72.5
IP - Gend	11	0.017	0.040	0.355	0.347	0.343	0.325	0.349	0.324	0.304	0.306	0.049	0.029	0.057	0.045	0.065	85.0
IP - Gend	12	0.017	0.035	0.345	0.339	0.339	0.351	0.355	0.326	0.310	0.317	0.041	0.026	0.052	0.044	0.042	65.0
IP - Gend	13	0.050	0.043	0.283	0.297	0.297	0.290	0.317	0.252	0.220	0.244	0.072	0.047	0.088	0.072	0.080	142.5
IP - Gend	14	0.018	0.054	0.311	0.299	0.296	0.285	0.296	0.243	0.229	0.241	0.065	0.036	0.077	0.069	0.077	125.0
Averages												0.054	0.034	0.064	0.056	0.062	
<b>Total Loss</b>																	<b>587.5</b>

\* The above kW Loss is based on the clearance as found on the above chart to the difference between OEM design clearance (.015).

<b>Total IP Packing Loss</b>	<b>957kW</b>
------------------------------	--------------

**Intermountain Generating Station - UNIT 1**

Intermediate Pressure Turbine

Radial Spill Strips

Opening clearances - 4/12/94

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	kW Loss
IP - Tend	8																
IP - Tend	9	0.065	0.052	0.219	0.222	0.219	0.221	0.221	0.187	0.179	0.221	0.067	0.059	0.080	0.074	0.058	76.8
IP - Tend	10	0.050	0.057	0.236	0.234	0.238	0.230	0.233	0.217	0.194	0.234	0.061	0.054	0.072	0.063	0.056	62.4
IP - Tend	11	0.066	0.063	0.241	0.244	0.241	0.243	0.244	0.231	0.212	0.237	0.070	0.065	0.081	0.070	0.067	84.0
IP - Tend	12	0.091	0.053	0.235	0.239	0.238	0.239	0.236	0.214	0.209	0.234	0.077	0.072	0.084	0.081	0.071	76.8
IP - Tend	13	0.070	0.054	0.229	0.232	0.229	0.230	0.225	0.218	0.215	0.221	0.064	0.062	0.067	0.064	0.064	45.6
IP - Tend	14	0.080	0.076	0.224	0.226	0.224	0.220	0.224	0.206	0.205	0.213	0.084	0.078	0.088	0.086	0.086	96.0
Averages												0.071	0.065	0.078	0.073	0.067	
<b>Total Loss</b>																	<b>441.6</b>

Turbine	Stage No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)					Pwr Svg.
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR	kW Loss
IP - Gend	8																
IP - Gend	9	0.065	0.060	0.244	0.244	0.245	0.247	0.248	0.246	0.225	0.233	0.067	0.063	0.074	0.064	0.069	76.8
IP - Gend	10	0.050	0.057	0.237	0.237	0.233	0.236	0.232	0.242	0.215	0.223	0.056	0.054	0.064	0.049	0.059	50.4
IP - Gend	11	0.048	0.065	0.242	0.243	0.244	0.243	0.244	0.230	0.207	0.224	0.065	0.057	0.074	0.063	0.066	72.0
IP - Gend	12	0.060	0.071	0.231	0.233	0.230	0.233	0.235	0.197	0.187	0.205	0.080	0.066	0.090	0.084	0.080	84.0
IP - Gend	13	0.075	0.088	0.226	0.226	0.228	0.230	0.224	0.211	0.202	0.209	0.087	0.082	0.092	0.088	0.087	100.8
IP - Gend	14	0.08	0.078	0.218	0.218	0.229	0.222	0.227	0.211	0.182	0.191	0.089	0.079	0.096	0.087	0.095	105.6
Averages												0.074	0.066	0.082	0.072	0.076	
<b>Total Loss</b>																	<b>489.6</b>

\* The above kW Loss is based on the clearance as found on the above chart to the difference between OEM design clearance (.050 -.060).  
The above calculation is based on reducing the clearance on spill strips by .015.

<b>Spill Strip Total Loss 931.2 kW</b>
--

**Intermountain Generating Station - UNIT 1**

Intermediate Pressure Turbine

End Packings

Opening clearances - 4/12/94

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N3	1	0.030	0.029	0.295	0.271	0.287	0.279	0.278	0.277	0.256	0.294	0.036	0.030	0.045	0.042	0.029
N3	2	0.031	0.035	0.288	0.275	0.291	0.293	0.281	0.267	0.263	0.296	0.036	0.033	0.041	0.047	0.023
N3	3	0.022	0.030	0.286	0.280	0.263	0.284	0.279	0.290	0.280	0.306	0.025	0.026	0.037	0.024	0.014
N3	4	0.019	0.025	0.299	0.296	0.300	0.295	0.301	0.290	0.289	0.311	0.024	0.022	0.028	0.029	0.019
Averages												0.030	0.027	0.035	0.033	0.019

**Total Loss 420 kW**

Packing	Ring No.	Clearance (in.)		Tooth Heights (in.)								Calculated Clearance (in.)				
		Left	Right	Left	Lower Left	Bottom	Lower Right	Right	Upper Right	Top	Upper Left	Avg.	L-R	T-B	UR-LL	UL-LR
N4	1	0.021	0.063	0.297	0.299	0.297	0.298	0.286	0.297	0.265	0.280	0.044	0.042	0.053	0.036	0.045
N4	2	0.014	0.033	0.310	0.304	0.303	0.314	0.310	0.303	0.274	0.282	0.034	0.024	0.045	0.030	0.036
N4	3	0.010	0.035	0.313	0.311	0.307	0.310	0.315	0.312	0.274	0.280	0.034	0.023	0.046	0.025	0.042
N4	4	0.010	0.032	0.314	0.314	0.306	0.305	0.314	0.314	0.283	0.284	0.031	0.021	0.041	0.021	0.041
Averages												0.035	0.027	0.046	0.028	0.041

**Total Loss 490 kW**

\* The above kW Loss is based on the clearance as found on the above chart to the difference between OEM design clearance (.015).

**Total N Gland Loss 910 kW**

IP7\_005392

**FIELD SERVICES****FIELD SERVICE RATES**

The following rates shall apply for pre-inspection, reverse engineering, packing installation (retractable and conventional), spill strip installations, on-site repairs and on-site machining projects using TurboCare's CNC Milling machine.

**I. LABOR RATES****A. Repair or Installation Support**

Straight Time – \$94.00/hr.

Eight hours per day  
Monday through Friday

Overtime - \$120.00/hr.

Any hours over eight or Saturdays

Sundays &amp; Holidays - \$130.00/hr.

**B. Hands on Lead Man**

Straight Time – \$100.00/hr.

Eight hours per day  
Monday through Friday

Overtime - \$128.00/hr.

Any hours over eight or Saturdays

Sundays &amp; Holidays - \$140.00/hr.

**C. Project Manager/Engineering Specialist**

Straight Time – \$108.00/hr.

Eight hours per day  
Monday through Friday

Overtime - \$140.00/hr.

Any hours over eight or Saturdays

Sundays &amp; Holidays - \$190.00/hr.

**Note:** Travel time for above positions to be billed at a straight time rate.  
Standby time due to work stoppage not under our direct control is a flat rate of \$94.00/hour and would be billed against the contract.

Description:	Document No.:	Rev. 2	Page No.:
<b>Field Service Rates</b>	QCM-58.DOC	Date: 09/18/00	1 of 2

**FIELD SERVICES****Field Service Rates Continued****II. TRAVEL EXPENSES**

- Travel and Living Expenses – Cost plus 15%
- Meal cost Per Diem - \$40.00/day for most areas, other expenses cost per receipts.

**III. TOOLING AND EQUIPMENT RENTAL**

- CNC Milling Machine - \$450.00/day plus freight  
Other tooling and equipment – price per job need

**IV. FREIGHT AND TRUCKING CHARGES**

- Cost plus 15%
- Company vehicles - .45 per mile

Effective Date: September 18, 2000

Approved by:

John SpranceDonald R. Leger

Description:	Document No.:	Rev. 2	Page No.:
<b>Field Service Rates</b>	QCM-58.DOC	Date: 09/18/00	2 of 2

**ADDENDUM A TURBOCARE ADVANCED SEALING OPTIONS**

**OPTION I - IP BRUSH SEAL PACKAGE - UNITS 1 & 2**

TurboCare would like to offer the latest in sealing technology, Retractable Brush Seals. The addition of a brush to your current Retractable Packing allows an effective .002" to .003" clearance seal. This compliant seal also allows for minor rotor excursions without compromising the tight seal.

The following estimates the potential savings associated with installing Retractable Brush Seals in your IP cylinders. This estimate is based on reducing clearance to an effective .002" to .003".

<u>IP Unit #1</u>		<u>IP Unit #2</u>	
Δ kW	390	Δ kW	390
Δ Heat Rate	4.25 BTU/kW-HR	Δ Heat Rate	4.25 BTU/kW-HR
Est Annual Fuel Savings	\$43,831.	Est Annual Fuel Savings	\$43,831.
Annual Generation Benefit	\$61,495.	Annual Generation Benefit	\$61,495.

For calculation purposes, the following information was used:

1. Turbine rating of 820 megawatts. *830 MW*
2. Turbine heat rate of 9500 BTU/kW-hr.
3. Capacity factor 90%
4. Fuel cost \$ 1.50 per million BTU's *\$1.30 / MBtu*
5. Assumed clearance of packing .025" ?
6. Assumed excess clearance of packing and spills .025" ?

In order to install this seal, the diaphragms must be pre-measured for distortion and the rings recalculated to adjust for the new pressure distribution of the seal. The price adder for installing the brush seals (12 rows) is \$102,000.00 per unit.

**Note: The final brush seal quantity can only be determined after unit design is completed. If the final quantity of brush seals changes, the price will be modified.**

*\$41,994 / yr ea unit*

**OPTION II – HIGH EFFICIENCY SEAL RINGS – UNITS 1 & 2**

As conventional snout rings are susceptible to oxidation, resulting in interference of clearances, galling, ring breakage, and stretching, they are often a significant contributor to large efficiency losses. Conventional snout rings are also difficult to remove and install, therefore, they are rarely replaced even when they are the cause of large losses in efficiency.

The solution to this large loss in efficiency is the installation of TurboCare®'s High Efficiency Inlet Seal Rings, which utilize differing coefficients of thermal expansion, depending upon their location. The differing expansion coefficients allow for easy installation, since rings have a larger than original design radial clearance during cold assembly. Once the unit is up to operating temperature the rings will seal with a .000" clearance to the pipe.

The low-friction characteristic of the materials allows the rings to move relative to each other during turbine warm-up, thus preventing galling, breakage, and ring stretch.

**The price to supply TurboCare's High Efficiency Seal Rings (112 rings) is \$95,200. per unit.**

**Conventional snout rings (112 rings) can be provided for \$70,000. per unit.**

All products are manufactured per our ISO 9001 certification. A complete quality manual can be supplied if requested.

**Rings will be supplied to finished-dimensions specified by on site service personnel. Please note also that if your unit has a twelve percent (12%) chrome nozzle box, TurboCare® must be notified prior to the beginning of ring manufacturing.** Furthermore, it is recommended that all snouts and bores undergo Non-Destructive Examination and honing to insure unit integrity, remove oxide buildup, and provide a smooth sealing surface.

**OPTION III – UPGRADED SPILL STRIPS – UNIT 1 & 2**

1. The price for a set of energy efficient SPE Coated spill strips for stages 9 through 14 TE/GE is \$9,600. This includes all design changes as described as well as a complete set of spill strip springs. Please note, coated spills may be made of steel.
2. The price to add our patented HELP'R seals to the above SPE spills is \$17,600. for stages 9 through 14 TE/GE.

Pricing is based upon quantity and lead-time provided.

**If an order is placed, in its entirety by December 20, 2001, a 6 percent discount will apply.** ) \*

Delivery is subject to prior sale. All items are quoted in US Dollars. All parts will be shipped Ex-works Chicopee, MA, freight collect. Pre-paid and add shipments are available at cost plus fifteen percent (15%).

This quotation is valid for thirty (30) days unless extended in writing by the undersigned. Our quotation is conditioned on acceptance of *TurboCare* Standard Conditions of Sale (FSRevised91701-D). All payments shall be made without deduction or set-off. Terms of payment are net thirty (30) days from scheduled date of shipment. A late charge of one and one half (1- ½%) per month (but not in excess of the lawful maximum) will be imposed on all past due balances, prorated on a daily basis for each day that payment is due.



## Turbine Repair Services

1620 Commerce St., Unit B - Corona, CA 92880  
Phone (909) 372-0520 Fax (909) 372-0328

December 4, 2001

Mr. Ralph C. Newberry  
Buyer  
Intermountain Power Service Corporation  
850 West Brush Wellman Road  
Delta, UT 84624-9546

Subject: IPSC Bid Specification 45556  
Steam & Gas Quote No. 01-075

Dear Mr. Newberry,

Thank you for the opportunity to provide our quotation to install packing and spills in the IP section for units 1 & 2. Attached are the bid proposal documents.

Steam & Gas (S&G) has teamed up with Turbine Service and Supply (TSI) to provide a complete package, which includes the material and service necessary to meet your requirements. TSI will supply their Sensitized packing and the engineering for this project. S&G will provide the technicians for the installation and the technical direction for the project.

Our offering is for the Sensitized Packing™ which is not "Variable Clearance Packing". We feel that this packing fully meets the intent of the specification in that it offers the same advantages as variable. The results of Sensitized are equal to variable in reducing seal leakage. It can also eliminate rotor start up heating, bowing, seal wear, and allows for tighter tip seal clearance. See Attachments "C" and "Sensitized Packing Advantages". Also attached are the calculated savings due to the improved efficiency (Attachment "B").

Due to the extremely short duration of the outages TSI will manufacture the packing in advance and wait for the "cell" dimensions taken by S&G prior to the final milling of the packing rings.

S&G will conduct the opening inspection, which will include the following work scope:

- Ship tooling and equipment to site.

IP7\_005398

# Steam & Gas

Quotation No. 01-075 Cont.

- Personnel travel to site.
  - Note: IPSC to notify S&G when the blast cleaning and NDE will be completed on the diaphragms and N - packing holders.
- Measure and record rotor diameters at packing fit HI/LO locations and Cover diameters for spill locations.
- Record "cell" dimensions for all packing carriers and report to TSI for final machining of packing prior to shipment.
- Verify dimensions of steam packing and spill strips supplied by TSI.
- Note: The specification calls for re-engineering and upgrading the packing currently in N-1 groves 4 - 7 and N-2 groves 6 - 7. Our offer is to replace these rows with Sensitized Packing.
- All dimensions and findings will be reported to IPSC.
  - Checks for distortion of the diaphragm packing and spill strip bores, distortion of N box packing holders, and dishing of the diaphragms will be included in the opening inspection and reported with the other findings along with any recommendations for repairs that may be needed.

## Spill Strip Installation:

- Additional personnel travel to site.
- Install new seals.
- Cut and fit to horizontal joint and install keepers.
- Bolt halves together and record seal diameter.

## Packing Installation:

- Machine pin slots in upper half diaphragms and mill keeper slots in upper half N boxes.
- Fit packing and adjust but clearance as required.
  - Note: If there is distortion severe enough to require modification of the packing for elliptical packing, or the need to manufacture new packing, there will be additional charges for these services.
  - A CNC milling machine will be available on site should additional machining be required.
- Demobilize and travel home.

## Clarifications and Exceptions to Bid Specification:

1. The specification did not request a quote for new spill strip springs. We can supply the springs and would be happy to provide pricing. Please provide part numbers for any springs you may require.

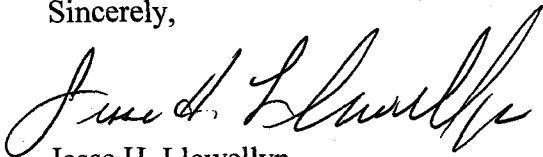
# Steam & Gas

Quotation No. 01-075 Cont.

2. The specification only addresses the N packing rows where retractable can be installed. The Sensitized Packing we are proposing can be installed in all N box groves, therefore, we would also be happy to provide these rings as Sensitized, or conventional, should IPSC decide to replace them. We will need part numbers to provide pricing.
3. The Sensitized Packing we are offering does include the springs, as they are an integral part of the packing design.
4. All packing and spills are FOB Factory Ocala, FL, freight prepay and add 15%, or collect for your account.
5. Paragraph 4 page E2-2. IPSC recognizes the fact that Steam & Gas has payments that are due to suppliers, employees, freight carriers, etc. that cannot be delayed to meet the IPSC terms of payment. We therefore require payment terms of 90% net 30 days upon submittal of invoices for shipment of the packing and spill strips, completion of the supply and installation of packing and spills and submittal of final invoices. The final 10% is due 30 days after completion of the performance test but not later than 90 days from the date of final invoicing.
6. Paragraph 4 page F1-1. If the option to renew extends the delivery beyond June 30, 2003 there will be a 5% increase for all parts and services.
7. Prices quoted are valid for 60 days from bid opening of December 5, 2001.
8. Prices are not stand-alone and are based on S&G doing all the work for each unit on the same trip.
9. Any additional work will be at our then current Field Service Rates see Attachment A.

Thanks again for the opportunity to provide our proposal. We look forward to working with Intermountain Power on this important project.

Sincerely,



Jesse H. Llewellyn

# Steam & Gas

Quotation No. 01-075 Cont.

Attachment A

## Service Rates

January 2001

### Turbine Repair Specialist

- |                        |               |
|------------------------|---------------|
| • Straight Time        | \$ 65.00/Hour |
| • Overtime             | \$ 90.00/Hour |
| • Sundays and Holidays | \$120.00/Hour |

### Turbine Repair Work Leader

- |                        |               |
|------------------------|---------------|
| • Straight Time        | \$ 75.00/Hour |
| • Overtime             | \$100.00/Hour |
| • Sundays and Holidays | \$130.00/Hour |

### Turbine Repair Supervisor

- |                        |               |
|------------------------|---------------|
| • Straight Time        | \$ 85.00/Hour |
| • Overtime             | \$120.00/Hour |
| • Sundays and Holidays | \$160.00/Hour |

### Consumables and Supplies

- |                               |                      |
|-------------------------------|----------------------|
| • Diaphragm and nozzle repair | 15% of Labor charges |
| • Blade and rotor repairs     | 10% of Labor charges |
| • Machining and other repairs | 10% of Labor charges |

<b>Material, Freight and Vendor Charges</b>	Cost plus 15%
---	---------------

### Travel and Living Expenses

- |  |                             |
|--|-----------------------------|
| • Jobs less than 75 miles from the shop<br>(Includes travel time, mileage and meals)   | \$100.00 Per person per day |
| • Jobs over 75 miles from the shop<br>(Includes Hotel, Meals and local transportation) | \$175.00 Per person per day |
| • Air transportation and other expenses  | Cost plus 10%               |

Notes: All prices valid for 90 Days.  
Subject to TRS Standard Conditions of Sale

# Steam & Gas

Quotation No. 01-075 Cont.

## Attachment B

### INTERMOUNTAIN POWER IP TURBINE IMPROVEMENT OVER APRIL 1994, ASSUMING SENSITIZED PACKING.

STAGE	SHAFT KW	SHAFT HR	SHAFT \$	TIP KW	TIP HR	TIP \$
8T	NA	NA	NA	310	3.62	\$ 31,782.00
9T	77	0.9	\$ 7,888.00	232	2.71	\$ 23,802.00
10T	60	0.7	\$ 6,137.00	183	2.14	\$ 18,788.00
11T	54	0.63	\$ 5,529.00	191	2.23	\$ 19,614.00
12T	39	0.46	\$ 4,038.00	218	2.54	\$ 22,349.00
13T	54	0.63	\$ 5,512.00	137	1.6	\$ 14,080.00
14T	54	0.64	\$ 5,580.00	197	2.29	\$ 20,149.00
N3	125	1.46	\$ 12,816.00	NA	NA	NA
8G	NA	NA	NA	333	3.88	\$ 34,109.00
9G	95	1.11	\$ 9,731.00	232	2.71	\$ 23,803.00
10G	70	0.82	\$ 7,212.00	154	1.79	\$ 15,757.00
11G	78	0.91	\$ 7,988.00	167	1.95	\$ 17,161.00
12G	50	0.58	\$ 5,080.00	232	2.71	\$ 23,776.00
13G	81	0.94	\$ 8,244.00	230	2.69	\$ 23,607.00
14G	58	0.68	\$ 5,937.00	215	2.51	\$ 22,015.00
N4	165	1.93	\$ 16,934.00	NA	NA	NA
TOTALS	1060	12.39	\$ 108,626.00	3031	35.37	\$ 310,792.00

These calculations are based on 15 mil shaft packing clearance and 30 mil tip seal clearance, compared to the April 1994 opening clearance values. For the 8th stage tip seals, where no 1994 clearances were recorded, we assumed the average clearance for the section. The dollar values shown are for one (1) year. The KW increases and heat rate improvements do not include correction factors for efficiency losses that would be recovered by the LP section. That is, the IP turbine is being treated as an individual unit. These values were based on a fuel cost of \$1.30/mmbtu and a 90% capacity factor.

## Attachment C

### **“Quote by Ron Brandon”**

It has been very well documented that turbines with conventional packing experience seriously bowed rotors caused by the heat generated when the shaft rubs against the packing. This heat is created by the shaft pushing against the segments being held in position by an extremely strong spring. The heat generated in the surface of the shaft is proportional to the spring force that the rotor must overcome to move the packing ring segment.

The original concept of Retractable Packing was to eliminate the rub entirely, in essence reduce the spring force to zero, by increasing the radial clearance during startup and thus eliminating the rub.

The concept of Sensitized Packing™ simply takes a different approach of reducing the spring force to “zero”. The unique design of segments and springs allows the spring force to be reduced to less than 1% of conventional packing spring forces. The result is 1/100<sup>th</sup> of the spring force and therefore 1/100<sup>th</sup> of the bowing.

The **worst** bow typically encountered during startup with conventional packing is 50 mils. The **worst bow** therefore to be expected with Sensitized Packing™ is **.0005”**, and we would actually expect much less. I feel extremely confident in stating that the efficiency improvement benefits to be derived from the installation of Sensitized Packing™ would therefore be the same as the installation of Retractable Packing.

The further advantage of this design is that it can be applied throughout the entire turbine including the outer 3 rings of the N glands, double flow nozzle rings and LP packing since it does not rely on stage pressure drops to function properly.

**PART C - DIVISION C2****BIDDING DOCUMENTS - PROPOSAL SCHEDULE**

Proposal is hereby made to furnish and deliver to IPSC all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003, f.o.b. Delta, Utah, in accordance with Specifications 45556 and bidding documents, pages C1-1 and C2-1 through C2-7.

Prices: The price or prices shall be firm.

Cash Terms: A discount for prompt payment is offered of \_\_\_\_\_ percent for Contract payments made within \_\_\_\_\_ calendar days after date of acceptance or delivery and receipt of invoice.

Taxes: The foregoing quoted prices are exclusive of all applicable sales and use taxes.  
Turbine Service and Supply, Inc.

Manufacturer: \_\_\_\_\_

\_\_\_\_\_  
Ocala, FL 34478-1450  
Location of Point of Manufacture: \_\_\_\_\_

Form of Business Organization: The bidder shall state below the form of its business organization.

Bidder is: LLC (Corporation, Partnership, Limited Partnership, Individual)

If a partnership, the bidder shall state below the names of the partners. If a corporation, the bidder shall state below the names of the president and of the secretary.

James E. Harris President

Jesse H. Llewellyn Secretary Treasurer

Person to Contact: Should IPSC desire information concerning this Proposal, please contact:

Name: Jesse H. Llewellyn Telephone No: (909) 372-0520

Address: 1620 Commerce Street, Unit B, Corona, CA 92880

**PROPOSAL**

The undersigned hereby proposes to furnish and deliver **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003** to the Intermountain Power Service Corporation in accordance with **Specifications 45556**.

The undersigned agrees, upon the acceptance of this Proposal, to enter into and execute a Contract consisting of the documents identified in Part D of said Specifications for furnishing and delivering the items embraced in the accepted Proposal at the prices named in the accompanying Proposal Schedule.

The undersigned declares under penalty of perjury that such Proposal is genuine, and not sham or collusive, nor made in the interest or in behalf of any person or entity not herein named, and that the bidder has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding, and that the bidder has not in any manner sought by collusion to secure for itself an advantage over any other bidder.

I declare under penalty of perjury under the laws of the state of Utah that the foregoing is true and correct.

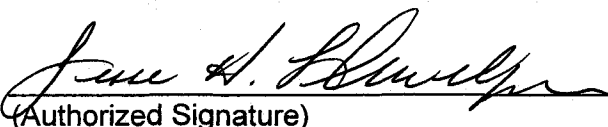
Date: December 4, 2001

Bidder: Steam & Gas Turbine Repair Services

Address: 1620 Commerce Street, Unit B

Corona, CA 92880

Signed By:

  
(Authorized Signature)

Print Name: Jesse H. Llewellyn

COO

Title: \_\_\_\_\_

BIDDING DOCUMENTSVARIABLE CLEARANCE PACKING SPILL STRIPS

## A. Unit 2 Intermediate-Pressure Turbine Shaft Packing

## 1. Materials

			Bid		
LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	RADIAL CLEARANCE	CONTRACT PRICE
N3 G3	U841B275L1234	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,733.00</u>
N3 G4	U841B275L1234	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,920.00</u>
N3 G5	U841B275L1234	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,920.00</u>
N3 G6	U841B275L1434	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,920.00</u>
N4 G1	U841B275L0668	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,653.00</u>
N4 G2	U841B275L0668	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,653.00</u>
N4 G3	U841B275L0668	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,653.00</u>
N4 G4	U841B275L0668	.015"	<del>Sensitized</del>	<u>0.015</u>	<u>5,653.00</u>
Stage 9 TE	U831B275D1046	.015"	Variable	<u>0.015</u>	<u>6,853.00</u>
Stage 9 GE	U831B275D0668	.015"	Variable	<u>0.015</u>	<u>6,587.00</u>
Stage 10 TE	U831B275B0846	.015"	Variable	<u>0.015</u>	<u>6,720.00</u>
Stage 10 GE	U831B275B0568	.015"	Variable	<u>0.015</u>	<u>6,453.00</u>
Stage 11 TE	U831B275B0646	.015"	Variable	<u>0.015</u>	<u>6,387.00</u>
Stage 11 GE	U831B275B0468	.015"	Variable	<u>0.015</u>	<u>6,387.00</u>
Stage 12 TE	U831B275B0746	.015"	Variable	<u>0.015</u>	<u>6,587.00</u>
Stage 12 GE	U831B275B0568	.015"	Variable	<u>0.015</u>	<u>6,453.00</u>
Stage 13 TE	U841B275L0646	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>
Stage 13 GE	U841B275L0468	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>
Stage 14 TE	U841B275L0646	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>
Stage 14 GE	U841B275L0468	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine shaft packing installation.

45,066.00

UNIT 2 IP SHAFT PACKING SUBTOTAL (Materials and Labor)

1104,610.00

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

B. Unit 2 Intermediate-Pressure Turbine Spill Strips

1. Materials

LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	Bid	
				RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	0.030	37.00
Stage 9 TE R2	"	0.050"	Straight	0.030	37.00
Stage 9 GE R1	U699C070S0510	0.050"	Straight	0.030	37.00
Stage 9 GE R2	"	0.050"	Straight	0.030	37.00
Stage 10 TE R1	U699C072S0530	0.050"	Straight	0.030	37.00
Stage 10 TE R2	"	0.050"	Straight	0.030	37.00
Stage 10 GE R1	U699C072S0530	0.050"	Straight	0.030	37.00
Stage 10 GE R2	"	0.050"	Straight	0.030	37.00
Stage 11 TE	U699C069S0550	0.050"	Straight	0.030	37.00
Stage 11 GE	U699C069S0550	0.050"	Straight	0.030	37.00
Stage 12 TE	U699C071S0565	0.060"	Straight	0.030	31.00
Stage 12 GE	U699C071B0565	0.060"	Straight	0.030	31.00
Stage 13 TE	U699C069B0590	0.060"	Straight	0.030	31.00
Stage 13 GE	U699C069B0590	0.060"	Straight	0.030	31.00
Stage 14 TE	U699C068B0625	0.060"	Straight	0.030	31.00
Stage 14 GE	U699C068B0625	0.060"	Straight	0.030	31.00

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation.

\$ 5,565.00

UNIT 2 IP SPILL STRIP SUBTOTAL (Materials and Labor)

\$ 6,121.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING 7 SPILL STRIPS**

**C. Unit 2 High-Pressure Turbine Shaft End Packing Upgrade**

**1. Materials**

LOCATION		OEM PART #	DESIGN CLEARANCE	Bid		CONTRACT PRICE
				TYPE	RADIAL CLEARANCE	
N1	G4	U841B262L0868	.015"	Variable	<u>0.015</u>	<u>6,053.00</u>
N1	G5	U841B262L0868	.015"	Variable	<u>0.015</u>	<u>6,053.00</u>
N1	G6	U841B262L0868	.015"	Variable	<u>0.015</u>	<u>6,053.00</u>
N1	G7	U841B262L0768	.015"	Variable	<u>0.015</u>	<u>5,987.00</u>
N2	G6	U831B305D1234	.015"	Variable	<u>0.015</u>	<u>5,920.00</u>
N2	G7	U831B305D1234	.015"	Variable	<u>0.015</u>	<u>5,920.00</u>

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade.

\$ 13,519.80

UNIT 2 HP SHAFT END PACKING SUBTOTAL (Materials and Labor)

49,505.80

UNIT 2 TOTAL UNIT PACKING AND SPILL STRIPS  
(Material and Labor)

\$ 220,236.80



**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**D. Unit 1 Intermediate-Pressure Turbine Shaft Packing**

**1. Materials**

			<b>Bid</b>		
<b>LOCATION</b>	<b>OEM PART #</b>	<b>DESIGN CLEARANCE</b>	<b>TYPE</b>	<b>RADIAL CLEARANCE</b>	<b>CONTRACT PRICE</b>
N3 G3	U841B275L1234	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,733.00</u>
N3 G4	U841B275L1234	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,920.00</u>
N3 G5	U841B275L1234	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,920.00</u>
N3 G6	U841B275L1434	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,920.00</u>
N4 G1	U841B275L0668	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,653.00</u>
N4 G2	U841B275L0668	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,653.00</u>
N4 G3	U841B275L0668	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,653.00</u>
N4 G4	U841B275L0668	.015"	<u>Sensitized</u>	<u>0.015</u>	<u>5,653.00</u>
Stage 9 TE	U831B275D1046	.015"	Variable	<u>0.015</u>	<u>6,853.00</u>
Stage 9 GE	U831B275D0668	.015"	Variable	<u>0.015</u>	<u>6,587.00</u>
Stage 10 TE	U831B275B0846	.015"	Variable	<u>0.015</u>	<u>6,720.00</u>
Stage 10 GE	U831B275B0568	.015"	Variable	<u>0.015</u>	<u>6,453.00</u>
Stage 11 TE	U831B275B0646	.015"	Variable	<u>0.015</u>	<u>6,387.00</u>
Stage 11 GE	U831B275B0468	.015"	Variable	<u>0.015</u>	<u>6,387.00</u>
Stage 12 TE	U831B275B0746	.015"	Variable	<u>0.015</u>	<u>6,587.00</u>
Stage 12 GE	U831B275B0568	.015"	Variable	<u>0.015</u>	<u>6,453.00</u>
Stage 13 TE	U841B275L0646	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>
Stage 13 GE	U841B275L0468	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>
Stage 14 TE	U841B275L0646	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>
Stage 14 GE	U841B275L0468	.015"	Variable	<u>0.015</u>	<u>5,253.00</u>

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine shaft packing installation.

45,066.00

**UNIT 1 IP SHAFT PACKING SUBTOTAL (Materials and Labor)**

164,610.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**E. Unit 1 Intermediate-Pressure Turbine Spill Strips**

**1. Materials**

LOCATION	OEM PART #	DESIGN CLEARANCE	Bid		
			TYPE	RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	0.030	37.00
Stage 9 TE R2	"	0.050"	Straight	0.030	37.00
Stage 9 GE R1	U699C070S0510	0.050"	Straight	0.030	37.00
Stage 9 GE R2	"	0.050"	Straight	0.030	37.00
Stage 10 TE R1	U699C072S0530	0.050"	Straight	0.030	37.00
Stage 10 TE R2	"	0.050"	Straight	0.030	37.00
Stage 10 GE R1	U699C072S0530	0.050"	Straight	0.030	37.00
Stage 10 GE R2	"	0.050"	Straight	0.030	37.00
Stage 11 TE	U699C069S0550	0.050"	Straight	0.030	37.00
Stage 11 GE	U699C069S0550	0.050"	Straight	0.030	37.00
Stage 12 TE	U699C071S0565	0.060"	Straight	0.030	31.00
Stage 12 GE	U699C071B0565	0.060"	Straight	0.030	31.00
Stage 13 TE	U699C069B0590	0.060"	Straight	0.030	31.00
Stage 13 GE	U699C069B0590	0.060"	Straight	0.030	31.00
Stage 14 TE	U699C068B0625	0.060"	Straight	0.030	31.00
Stage 14 GE	U699C068B0625	0.060"	Straight	0.030	31.00

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation.

5,565.00

UNIT 1 IP SPILL STRIP SUBTOTAL (Materials and Labor)

6,121.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**F. Unit 1 High-Pressure Turbine Shaft End Packing Upgrade**

**1. Materials**

			Bid		
LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	RADIAL CLEARANCE	CONTRACT PRICE
N1 G4	U841B262L0868	.015"	Variable	0.015	6,053.00
N1 G5	U841B262L0868	.015"	Variable	0.015	6,053.00
N1 G6	U841B262L0868	.015"	Variable	0.015	6,053.00
N1 G7	U841B262L0768	.015"	Variable	0.015	3,987.00
N2 G6	U831B305D1234	.015"	Variable	0.015	5,920.00
N2 G7	U831B305D1234	.015"	Variable	0.015	5,920.00

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade.

\$ 13,519.80

**UNIT 1 HP SHAFT END PACKING SUBTOTAL (Materials and Labor)**

49,505.80

**UNIT 1 TOTAL UNIT PACKING AND SPILL STRIPS  
(Material and Labor)**

\$ 220,236.80

From Connie E - 11/14/01

Spec. 45556

LIST OF SUGGESTED BIDDERS

Mr. Frank Rzepecki, President  
Turbine Service and Supply, Inc.  
810 Northwest 25<sup>th</sup> Avenue, Suite 108  
Ocala, FL 34475-5772  
Telephone: (352) 629-6909  
Fax: (352) 629-7425

Change F2 #4

Mr. Robert Hogan, Project Manager  
Chicopee Operations  
TurboCare  
2140 Westover Road  
Chicopee, MA 01022  
Telephone: (413) 593-0500, ext. 344  
Fax: (413) 593-3424

OK'd  
for release

Mr. Jeremiah Smedra  
General Electric Company  
PO Box 526440  
Salt Lake City, UT 84152-6440  
Telephone: (801) 468-5713

IP7\_005412

**TABLE OF CONTENTS****SPECIFICATIONS**

<u>PART</u>	<u>DIV</u>	<u>TITLE</u>	<u>PAGE NUMBER</u>
A	A1	Notice Inviting Proposals	A1-1
B	B1	Instructions to Bidders	B1-1 thru B1-2
C		Bidding Documents	
	C1	Proposal	C1-1
	C2	Proposal Schedule	C2-1 thru C2-7
D	D1	Contract Documents	D1-1
E	E1	General Conditions	E1-1 thru E1-5
	E2	Additional General Conditions	E2-1 thru E2-2
F		Detailed Specifications	
	F1	Special Conditions	F1-1 thru F1-5
	F2	General Design and Packing Requirements	F2-1 thru F2-3
		Appendix	
		IP Turbine Cross-Sectional Drawing	
		IP Rotor Clearance Diagram - Generator End	
		IP Rotor Clearance Diagram - Turbine End	
		Unit 1 - Rotor Clearances from 1994 Inspection	
		Unit 2 - Rotor Clearances from 1993 Inspection	

**PART A - DIVISION A1**

**NOTICE INVITING PROPOSALS**

The Intermountain Power Service Corporation (IPSC) invites sealed bids for furnishing and delivering **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003** in accordance with **Specifications 45556**, available in the Purchasing Section, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT 84624-9546.

Proposals shall be submitted on IPSC's bidding forms. All Proposals shall be filed with the Buyer at the above address on or before \_\_\_\_\_.

Proposals shall be subject to acceptance within, and irrevocable for, a period of sixty (60) calendar days after date of bid opening.

The right is reserved to reject any and all Proposals.

In the performance of any Contract awarded, the bidder shall not discriminate in employment practices against any employee or applicant for employment because of race, religion, national origin, ancestry, sex, age, or physical disability.

Dated: \_\_\_\_\_

\_\_\_\_\_  
Buyer

**PART B - DIVISION B1**

**INSTRUCTIONS TO BIDDERS**

1. Form, Signature, and Delivery of the Proposals: The bidder's Proposal shall be made on the yellow copy of the Bidding Documents. The specifications printed on white paper shall be retained by the bidder.

The bidder's name, address, and the date shall be stated in the Proposal. The Proposal shall be signed by the person authorized to bind the bidder.

The Proposal shall be enclosed in a sealed envelope, plainly marked in the upper left-hand corner with the name and address of the bidder. The envelope shall bear the words "Proposal for," followed by the specifications number, the title of the specifications, and the date and hour of bid opening.

If the Proposal is mailed, it shall be addressed as follows:

Purchasing Section  
Intermountain Power Service Corporation  
850 West Brush Wellman Road  
Delta, UT 84624-9546

If the Proposal is sent by messenger, it shall be delivered to the Administration Building, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT.

2. Interpretations and Addenda: Should a bidder find discrepancies or omissions in the plans, specifications, or other documents, or should there be doubt as to their true meaning, the bidder shall submit to the Buyer a written request for an interpretation or clarification thereof. A request for addenda, interpretation, or clarification shall be delivered to the Buyer marked "Request for Interpretation" and will be received by the Buyer in time to permit a reasonable response before date of bid opening. Any interpretation of, or change in the documents will be made only by addendum issued to each person to whom specifications have been issued and will become a part of any contract awarded. IPSC will not be responsible for any other explanations or interpretations.
3. Correspondence: All inquiries or correspondence to IPSC prior to award of the Contract shall be addressed to the Buyer.
4. Changes or Alternatives: The bidder shall not change any wording in the documents. Any explanations or alternatives offered shall be submitted in a letter attached to the front of the Bidding Documents. Alternatives which do not substantially comply with IPSC's specifications cannot be considered. Language of negation or limitation of any rights, remedies, or warranties provided by law will not be considered part of the Proposal. Bids offered subject to conditions or limitations may be rejected.
5. Specified Materials or Equivalent: Whenever any particular material or process is specified by a patent or proprietary name, by a trade or brand name, or by the name of a manufacturer, such wording is used for the purpose of describing the material or process, fixing the standard of quality required, and shall be deemed to be followed by

## DIVISION B1

INSTRUCTIONS TO BIDDERS

---

the words "or equivalent." The bidder may offer any material or process which shall be the equivalent of that so specified.

6. Language: Everything submitted by the bidder shall be written in the English language.
7. Sales or Use Taxes: Prices quoted by the bidder shall not include any applicable sales or use taxes or Federal Excise Taxes.
8. Duties: Prices quoted by the bidder shall include all applicable duties.
9. Award of Contract: Any award of Contract will be made to the lowest and best, regular responsible bidder. The determination as to which is the lowest and best, regular responsible bidder may be made on the basis of the lowest ultimate cost of the materials or equipment in place and use. The right is reserved to reject any or all Proposals.

Within thirty (30) calendar days after the date of award of Contract, the successful bidder shall sign the Contract supplied by IPSC. The Contract will be effective upon execution by IPSC.

**PROPOSAL**

The undersigned hereby proposes to furnish and deliver **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003** to the Intermountain Power Service Corporation in accordance with **Specifications 45556**.

The undersigned agrees, upon the acceptance of this Proposal, to enter into and execute a Contract consisting of the documents identified in Part D of said Specifications for furnishing and delivering the items embraced in the accepted Proposal at the prices named in the accompanying Proposal Schedule.

The undersigned declares under penalty of perjury that such Proposal is genuine, and not sham or collusive, nor made in the interest or in behalf of any person or entity not herein named, and that the bidder has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding, and that the bidder has not in any manner sought by collusion to secure for itself an advantage over any other bidder.

I declare under penalty of perjury under the laws of the state of Utah that the foregoing is true and correct.

Date: \_\_\_\_\_, 20 \_\_\_\_\_

Bidder: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Signed By: \_\_\_\_\_  
(Authorized Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**PART C - DIVISION C2****BIDDING DOCUMENTS - PROPOSAL SCHEDULE**

Proposal is hereby made to furnish and deliver to IPSC all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003, f.o.b. Delta, Utah, in accordance with Specifications 45556 and bidding documents, pages C1-1 and C2-1 through C2-7.

Prices: The price or prices shall be firm.

Cash Terms: A discount for prompt payment is offered of \_\_\_\_\_ percent for Contract payments made within \_\_\_\_\_ calendar days after date of acceptance or delivery and receipt of invoice.

Taxes: The foregoing quoted prices are exclusive of all applicable sales and use taxes.

Manufacturer: \_\_\_\_\_  
\_\_\_\_\_

Location of Point of Manufacture: \_\_\_\_\_

Form of Business Organization: The bidder shall state below the form of its business organization.

Bidder is: \_\_\_\_\_ (Corporation, Partnership, Limited Partnership, Individual)

If a partnership, the bidder shall state below the names of the partners. If a corporation, the bidder shall state below the names of the president and of the secretary.

\_\_\_\_\_  
\_\_\_\_\_

Person to Contact: Should IPSC desire information concerning this Proposal, please contact:

Name: \_\_\_\_\_ Telephone No: \_\_\_\_\_

Address: \_\_\_\_\_

**PART D - DIVISION D1**

**CONTRACT DOCUMENTS**

The documents listed in the Table of Contents, the reference specifications, any documents listed below, and the bidding documents as expressly agreed to by IPSC shall constitute the Contract. Said documents are complementary and require complete and finished work. Anything shown or required of the Contractor in any one or more of said documents shall be as binding as if contained in all of said documents. The Contractor shall not be allowed to take advantage of any error, discrepancy, omission, or ambiguity in any document, but shall immediately report to the Chief Operations Officer, in writing, any such matter discovered. The Chief Operations Officer will then decide or correct the same and the decision will be final.

**PART E - DIVISION E1****GENERAL CONDITIONS**1. **Definitions:** The following words shall have the following meanings:

- a. **Bidder:** The person, firm, or corporation adopting and submitting a Proposal under these Specifications.
- b. **Buyer:** The Purchasing Agent for IPSC.
- c. **Chief Operations Officer:** The President and Chief Operations Officer of IPSC or designated representatives acting within the limits of their authority.
- d. **Contract Administrator:** The IPSC employee designated by the Chief Operations Officer with primary responsibility for administration of the Contract or designated representatives acting within the limits of their authority.
- e. **Contractor:** The person, firm, or corporation to whom the Contract is awarded.
- f. **Directed, Required, Approved, etc.:** The words *directed, required, approved, permitted, ordered, designated, prescribed, instructed, acceptable, accepted, satisfactory*, or similar words shall refer to actions, expressions, and prerogatives of the Contract Administrator unless otherwise expressly stated.
- g. **Gallon:** Liquid volume of 231 cubic inches at 60 degrees Fahrenheit.
- h. **IPA:** Intermountain Power Agency, the owner of IPP, and a political subdivision of the state of Utah, organized and existing under the Interlocal Co-operation Act, Title 11, Chapter 13, Utah Code Annotated 1953, as amended.
- i. **IPP:** Intermountain Power Project, consisting of Intermountain Generating Station, Intermountain Railcar, Intermountain Converter Station, Adelanto Converter Station, Intermountain AC Switchyard and associated transmission lines, microwave stations, and support facilities.
- j. **IPSC:** Intermountain Power Service Corporation, a nonprofit corporation, furnishing personnel to support the Operating Agent in the performance of operation and maintenance.
- k. **Operating Agent:** The city of Los Angeles Department of Water and Power (LADWP) which is responsible for operation and maintenance for IPP.
- l. **Reference Specifications:** Those bulletins, standards, rules, methods of analysis or tests, codes, and specifications of other agencies, engineering societies, or industrial associations referred to in these Specifications. These refer to the latest edition, including amendments published and in effect at the date of the Invitation for Proposal, unless specifically referred to by edition, volume, or date.

## DIVISION E1

## GENERAL CONDITIONS

- 
- m. Subcontractor: A person, firm, or corporation, other than the Contractor and employees thereof, who supplies labor or materials on a portion of the work.
- n. Ton: The short ton of 2000 pounds.
2. Materials and Work: All materials and work shall comply with these Specifications. All materials and equipment furnished shall be new and unused, but this requirement shall not preclude the use of recycled materials in the manufacturing processes. All work shall be done by qualified workers in a thorough and workmanlike manner. Materials or workmanship not definitely specified, but incidental to and necessary for the work, shall conform to the best commercial practice for the type of work in question.
3. Nondiscrimination: The applicable provisions of Executive Order No. 11246 of September 24, 1965, and Bureau of Land Management regulations pertaining to nondiscrimination in employment in the performance of contracts, are incorporated herein by reference, and made a part hereof as if they were fully set forth herein. During the performance of this Contract, the Contractor shall not discriminate in its employment practices against any employee or applicant for employment because of the employee's or applicant's race, religion, national origin, ancestry, sex, age, or physical disability. All subcontracts awarded under any such contract shall contain a like nondiscrimination provision.
4. Governing Law: This Contract shall be governed by the substantive laws of the state of Utah, regardless of whether rules on the conflict of laws would cause a court to look to the laws of any other state or laws of any other jurisdiction. Any action, in law or in equity, concerning any alleged breach of or interpretation of this Contract, or concerning any tort in relation to this Contract or incidental to performance under this Contract, shall be filed only in the state or federal courts located in the state of Utah.
5. Patents and Intellectual Property: The Contractor shall fully indemnify IPSC, IPA, and the Operating Agent against any and all liability, whatsoever, by reason of any alleged infringement of any intellectual property rights (including, but not limited, to patents, copyrights, trademarks, or trade secrets) on any article, process, method, or application used in any designs, plans, or specifications provided under this Agreement or by reason of use by IPSC of any article or material specified by the Contractor.
6. Contractor's Address and Legal Service: The address given in the Proposal shall be considered the legal address of the Contractor and shall be changed only by written notice to IPSC. The Contractor shall supply an address to which certified mail can be delivered. The delivery of any communication to the Contractor personally, or to such address, or the depositing in the United States Mail, registered or certified with postage prepaid, addressed to the Contractor at such address, shall constitute a legal service thereof.
7. Assignment of Contract Prohibited: The Contractor shall not assign or otherwise attempt to dispose of this Contract, or of any of the monies due or to become due thereunder, unless authorized by the prior written consent of the Chief Operations Officer. No right can be asserted against IPSC, IPA, or the Operating Agent, in law or equity, by reason of any assignment or disposition unless so authorized.

## DIVISION E1

## GENERAL CONDITIONS

If the Contractor, without such prior written consent, purports to assign or dispose of the Contract or of any interest therein, IPSC, at its option, may terminate the Contract, and IPSC, IPA, and the Operating Agent will be relieved and discharged from any and all liability and obligations to the Contractor, and to any assignee or transferee thereof.

8. Quality Assurance: All materials or equipment furnished and delivered under the Contract will be subject to rigorous inspection by the Contract Administrator. Before offering any material or equipment for inspection or testing, the Contractor shall eliminate all items which are defective or do not meet the requirements of the specifications. If any items or articles are found not to meet the requirements of the specifications, the lot, or any faulty portion thereof, may be rejected. The fact that the materials or equipment have been inspected, tested, or accepted by the Contract Administrator shall not relieve the Contractor of responsibility in case of later discovery of flaws or defects.

Materials or equipment purchased under the Contract will be inspected at IPSC's specified receiving points and there accepted or rejected. Inspection will include all necessary testing for determining compliance with the specifications. The expense of the initial acceptance tests will be borne by IPSC. All expense of subsequent tests will be charged against the Contractor when due to failure of first-offered materials or equipment to comply with the specifications.

9. Extra Work or Changes by IPSC: IPSC reserves the right at any time before final acceptance of the entire work to order the Contractor to perform extra work, furnish extra material or equipment, or to make changes altering, adding to, or deducting from the work, without invalidating the Contract. Changes shall not be binding upon either IPSC or the Contractor unless made in writing in accordance with this Article.

Changes will originate with the Chief Operations Officer who will transmit to the Contractor a written request for a Proposal covering the requested change, setting forth the work in detail, and including any required supplemental plans or specifications. Upon receipt of such request, the Contractor shall promptly submit in writing to the Chief Operations Officer a Proposal offering to perform such change, a request for any required extension of time caused by such change, and an itemized statement of the cost or credit for the proposed change. Failure of the Contractor to include a request for extension of time in the Proposal shall constitute conclusive evidence that such extra work or revisions will entail no delay and that no extension of time will be required.

If the Contractor's Proposal is accepted by IPSC, a written change order will be issued by the Chief Operations Officer stating that the extra work or change is authorized and granting any required adjustments of Contract price and of time of completion.

The performance of extra work or changes pursuant to the change order shall be in accordance with the terms and conditions of these Specifications. No extra work shall be performed or change made unless pursuant to such written change order, and no claim for an addition to the Contract price shall be valid unless so ordered.

10. Changes at Request of Contractor: Changes may be made to facilitate the work of the Contractor. Such changes may only be made without additional cost to IPSC and

## DIVISION E1

## GENERAL CONDITIONS

without extension of time. Permission for such changes shall be requested in writing by the Contractor to the Chief Operations Officer.

11. Time is of the Essence and Extensions of Time: Time is of the essence of the Contract. Delivery shall be completed within the times and by the dates specified. Time for delivery shall not be extended except as provided in this Article.

If the Contractor makes a timely written request in accordance with this Article, the time for delivery will be extended by a period of time equivalent to any delay of the whole work which is: (1) authorized in writing by the Chief Operations Officer, (2) caused solely by IPSC, or (3) due to unforeseeable causes (such as war, strikes, or natural disasters) and which delay is beyond the control and without the fault or negligence of the Contractor and subcontractors.

The Contractor shall promptly notify the Chief Operations Officer in writing at both the beginning and ending of any delay, of its cause, its effect on the whole work, and the extension of time claimed. Failure of the Contractor to provide such written notices and to show such facts shall constitute conclusive evidence that no excusable delay has occurred and that no extension of time is required.

The Chief Operations Officer will ascertain the facts and the extent of the delay and will extend the time for delivery when the findings of fact justify such an extension. The Chief Operations Officer's determination will be final and conclusive.

IPSC will be responsible for extensions of time as herein provided, but will not otherwise be responsible in any manner or to any extent for damage directly or indirectly suffered by the Contractor by any delay.

12. Protests and Claims: If the Contractor considers any demand of the Chief Operations Officer to be outside of the requirements of the Contract, or considers any amount of payment, or any record, ruling, or other act or omission by the Chief Operations Officer to be unreasonable, the Contractor shall promptly deliver to the Chief Operations Officer a written statement of the protest and of the amount of compensation claimed.

Upon written request by the Chief Operations Officer, the Contractor shall provide access to all records containing any evidence relating to the claim or protest.

Upon review of the protest, claim, and evidence, the Chief Operations Officer will promptly advise the Contractor in writing of the final decision which will be binding on all parties.

The requirements of this Article shall be in addition to, and shall not be construed as waiving, claims provisions of the Government Code of the state of Utah. The Contractor is deemed to have waived and does waive all claims for extensions of time and for compensation in addition to the Contract price except for protests and claims made and determined in accordance with this Article.

13. Limitation of Liability: It is understood and agreed that IPA shall be the party solely liable to the Contractor for payments under this Contract and for any breaches, defaults,

or for any torts in the performance of or in relation to this Contract by IPA or the Operating Agent or IPSC or any officers, agents, or employees thereof, and the Contractor hereby expressly covenants and agrees that no suit shall be brought by the Contractor against the Operating Agent or IPSC or their officers, agents, or employees or any of the purchasers of power from IPA, but that all rights or remedies that the Contractor may have or that may arise shall be asserted by the Contractor solely against IPA.

14. Independent Contractor: The Contractor shall perform said services as an independent contractor in the pursuit of its independent calling, is not an employee, agent, joint venturer, partner, or other representative of IPSC or the Operating Agent and shall be under the control of IPSC only to provide the services requested and not as to the means or manner by which the work is to be accomplished. The Contractor has no authority to act for, bind, or legally commit IPA, IPSC, or the Operating Agent in any way.
15. Drug Policy: The Contractor shall submit a current copy of its drug policy for review. Intermountain Power Project facilities are a drug free and zero tolerance workplace. The Contractor and its subcontractors' employees who are to perform work at the IPP site shall participate in a drug testing program prior to arrival, and at any additional time(s) during the Contract as IPSC may request.
16. Nonexclusive: This is a nonexclusive Contract. IPSC reserves the right to obtain ~~exclusive~~ services from other Contractors.

**PART E - DIVISION E2****ADDITIONAL GENERAL CONDITIONS**

1. **Performance:** Work completed during the outage on the intermediate-pressure turbine section shall be guaranteed to produce an improvement in section efficiency equal to the predicted section efficiency improvement. The predicted section efficiency improvement shall be determined from the opening clearance measurements and the expected closing clearances resulting from the new packing and spill strips. The predicted section efficiency improvement shall be agreed upon by the Contractor and IPSC, before the installation of the new packing and spill strips.

IPSC will conduct a pre-outage performance test to determine the section efficiency of the intermediate-pressure turbine section. After the intermediate-pressure turbine section is disassembled, an opening steam path audit will be conducted by IPSC to determine the efficiency loss attributable to increased packing and spill strip clearances. Steam path repairs, in addition to the packing and spill strip replacement, shall be determined by IPSC following evaluation of the opening steam path audit.

Prior to closing the intermediate-pressure turbine section, a closing steam path audit shall be conducted by IPSC to determine the expected recovered losses attributable to outage repairs. This information will be used to check the final packing and spill strip clearances and to determine the portion of the total expected recovered losses attributable to the packing and spill strip replacement.

2. **Performance Tests:** IPSC shall conduct pre and post-outage performance tests to determine compliance with the performance guarantee. Enthalpy drop efficiency tests will be conducted to determine intermediate-pressure turbine section efficiencies. Test data will be measured using plant instrumentation calibrated by IPSC, or by calculated values agreed upon by the Contractor and IPSC where measurements are impractical or suspect. Tests will be conducted at turbine throttle valves-wide-open and steady load.

The general methods outlined in the ASME test codes will be used as a guide for test procedures; however, code technicalities shall not void the validity of these tests. The Contractor shall have the right to witness the tests.

In addition to the above test procedures, IPSC may utilize a third party contractor to conduct ASME Performance Test Code type tests (ASME PTC-6S) for the pre and post-outage testing. IPSC further reserves the right to use a third party contractor to conduct the opening and closing steam path audits. The results of the pre and post-outage performance tests and steam path audits shall then be binding on the parties of this Contract.

All reasonable effort will be made to conduct the pre-outage performance tests within four (4) weeks before the start of the outage and the post-outage test within four (4) weeks of the initial startup following the outage.

3. **Guarantee:** The Contractor shall guarantee for a minimum period of one (1) year after delivery that all materials and workmanship furnished shall be free from defects. The Contractor shall guarantee that the intermediate-pressure turbine section meets the performance conditions as set forth in these Specifications.

## DIVISION E2

## ADDITIONAL GENERAL CONDITIONS

If the field performance tests indicate that such performance conditions are not met, then IPSC shall be entitled to damages, excluding consequential damages, for such deficient performance. The damages for failing to meet the performance conditions as set forth in these Specifications shall be ten (10) percent of the contract amount. It is agreed between the Contractor and IPSC that it would be impossible or extremely difficult to determine actual damages for failing to meet the guaranteed performance and that the above agreed amounts are reasonable liquidated damages and do not constitute a penalty.

The Contractor shall repair or replace, f.o.b. contract delivery point, all defective materials and workmanship.

4. Payment: Payment will be made within thirty (30) calendar days after completion of outage and performance tests, and receipt of the invoice.

5. Regulations, Permits, Licenses, and Warrants: The Contractor shall comply with all applicable federal, state, and local regulations including, but not limited to, Federal and State Occupational Safety Health Administration (OSHA), as said regulations relate to this Contract. In addition, the Contractor shall ensure that all permits, licenses, and warrants relating to the Contract be acquired.

6. Invoices: Invoices shall be submitted in duplicate to Accounts Payable, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT 84624-9546.

Each invoice shall show the Contract number. In all cases, the amount of the applicable sales tax or use tax shall be separately stated on the invoice.

7. Letters to IPSC: All inquiries relating to these Specifications prior to award of the Contract shall be addressed to the Buyer.

After award of Contract, all letters pertaining to performance of the Contract shall be addressed as follows:

S. Gale Chapman  
President and Chief Operations Officer  
Intermountain Power Service Corporation  
850 West Brush Wellman Road  
Delta, UT 84624-9546

Attention: Contract Administrator

Regarding Contract No. 02-45556

**PART F - DIVISION F1****DETAILED SPECIFICATIONS - SPECIAL CONDITIONS**

1. **General:** Under the terms of the Contract, the Contractor shall furnish and deliver **all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003.**
2. **Schedule:** Coordination and scheduling of work will be essential for efficient use of equipment and manpower due to the tight overhaul schedule.

The projected work schedule will be released to the Contractor within two (2) weeks of the award of the Contract so that IPSC's and the Contractor's work can be coordinated. IPSC may change the schedule to meet outage requirements.

The Contractor shall schedule delivery of equipment and materials in accordance with the following listed dates:

- a. **Unit 2:** The outage will commence on March 2, 2002, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 4, 2002. Outage work shall be completed and the unit put on turning gear no later than March 29, 2002. The unit will be released for normal operation on April 1, 2002.
  - b. **Unit 1:** The outage will commence on March 1, 2003, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 3, 2003. Outage work shall be completed and the unit put on turning gear no later than March 28, 2003. The unit will be released for normal operation on March 31, 2003.
3. **Printed Documents:** All printed documents including drawings and instruction books, if applicable, shall be in the English language. All units of measurement shall be in the English foot-pound-second system.
  4. **Option to Renew:** IPSC will have the right and option at any time during the original Contractual Period to renew the Contract for a period of one (1) year after date of expiration of the original Contractual Period at the same prices and terms and conditions for such extended or option period.

In the event that said option is exercised by IPSC, it will be exercised by the issuance and delivery to the Contractor of an order therefor by the Buyer or a duly authorized representative. The Contract executed for the original Contractual Period shall remain in effect for any such extended or option period.

5. **Indemnity Clause:** The Contractor undertakes and agrees to indemnify, hold harmless, and at the option of the Intermountain Power Agency, defend Intermountain Power Agency, Intermountain Power Service Corporation, Los Angeles Department of Water and Power, and any and all of their boards, officers, agents, representatives, employees, assigns and successors in interest from and against any and all suits and causes of action, claims, charges, costs, damages, demands, expenses (including, but

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

not limited to, reasonable attorneys' fees and cost of litigation), judgments, civil fines and penalties, liabilities or losses of any kind or nature, including, but not limited to, violations of regulatory law, death, bodily injury or personal injury to any person, including the Contractor's employees and agents, or damage or destruction to any property of either party hereto, or third persons in any manner arising by reason of or incident to the performance of this Contract on the part of the Contractor, or the Contractor's officers, agents, employees, or subcontractors of any tier, except for the sole negligence of IPA, IPSC, LADWP, or their boards, officers, agents, representatives, or employees.

6. Insurance Requirements: Prior to the start of work, but not later than thirty (30) days after date of the award of Contract, the Contractor shall furnish IPSC evidence of coverage from insurers acceptable to IPSC and in a form acceptable to the Insurance Analyst for IPSC. Such insurance shall be maintained by the Contractor and at the Contractor's sole cost and expense.

Such insurance shall not limit or qualify the liabilities and obligations of the Contractor assumed under the Contract. IPA, IPSC, or LADWP will not, by reason of its inclusion under these policies, incur liability to the insurance carrier for payment of premium for these policies.

Any insurance carried by IPA, IPSC, or LADWP which may be applicable will be deemed to be excess insurance and the Contractor's insurance is primary for all purposes despite any conflicting provision in the Contractor's policies to the contrary.

Should any portion of the required insurance be on a "Claims Made" policy, the Contractor shall, at the policy expiration date following completion of the work, provide evidence that the "Claims Made" policy has been renewed or replaced with the same limits and terms and conditions of the expiring policy, or that an extended discovery period has been purchased on the expiring policy at least for the Contract under which the work was performed.

Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a breach of Contract, upon which the Contract may be terminated or suspended.

- a. Workers' Compensation/Employer's Liability:

Workers' Compensation Insurance covering all of the Contractor's employees in accordance with the laws of any state in which the work is to be performed and including Employer's Liability Insurance, and as appropriate, Broad Form All States Endorsement, Voluntary Compensation, Longshoremen's and Harbor Workers' Compensation, Jones Act, and Outer-Continental Shelf coverages. The limit for Employer's Liability coverage shall be not less than \$1 million each accident and shall be a separate policy if not included with Workers' Compensation coverage. Evidence of such insurance shall be an endorsement to the policy providing for a thirty (30) day prior written notice of cancellation or nonrenewal of a continuous policy to IPSC, by receipted delivery, and a Waiver of Subrogation in favor of IPSC, IPA, and LADWP, its officers, agents, and

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

employees. Workers' Compensation/Employer's Liability exposure may be self-insured provided that IPSC is furnished with a copy of the certificate issued by the state authorizing the Contractor to self-insure. The Contractor shall notify IPSC, by receipted delivery, as soon as possible of the state withdrawing authority to self-insure.

b. Commercial General Liability:

Commercial General Liability with Blanket Contractual Liability, Products and Completed Operations, Broad Form Property Damage, Premises and Operations, Independent Contractors, and Personal Injury coverages included. Such insurance shall provide coverage for total limits actually arranged by the Contractor, but not less than \$2 million Combined Single Limit and be specific for this Contract. Should the policy have an aggregate limit, such aggregate limits should not be less than \$4 million. Umbrella or Excess Liability coverages may be used to supplement primary coverages to meet the required limits. Evidence of such coverages shall be on IPSC's Additional Insured Endorsement Form or on an endorsement to the policy acceptable to IPSC and provide for the following:

- (1) To include IPA, IPSC, LADWP, and their officers, agents, and employees as additional insured with the Named Insured for the activities and operations under the Contract.
- (2) That the insurance is primary and not contributing with any other insurance maintained by IPSC.
- (3) A Severability-of-Interest of Cross-Liability Clause such as: "The policy to which this endorsement is attached shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the company's liability."
- (4) That the policy shall not be subject to cancellation, change in coverage, reduction of limits or nonrenewal of a continuous policy, except after written notice to IPSC, by receipted delivery, not less than thirty (30) days prior to the effective date thereof.
- (5) A description of the coverages included under the policy.

c. Commercial Automobile Liability:

Commercial Automobile Liability covering the use of owned, nonowned, hired, and leased vehicles for total limits actually arranged by the Contractor, but not less than \$1 million Combined Single Limit. Such insurance shall include Contractual Liability coverage. The method of providing evidence of insurance and requirements for additional insureds, primary insurance, notice of cancellation, and Severability-of-Interest shall be the same as required in the Commercial General Liability Section of these terms and conditions.

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

d. Professional Liability:

The Contractor shall provide Professional Liability Insurance with Contractual Liability coverage included, covering the Contractor's liability arising from errors and omissions made directly or indirectly during the execution of this Agreement and shall provide coverage of \$5 million, Combined Single Limit. Evidence of such insurance shall be in the form of a special endorsement of insurance.

e. Other Conditions:

- (1) Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a major breach of Contract, upon which IPSC may immediately terminate or suspend the Agreement, or at its option, procure such insurance and submit a claim against Contractor's Performance Bond, deduct the cost thereof, including an administrative charge of two (2) percent, from any monies due the Contractor, or shall be immediately reimbursed by the Contractor for such costs upon demand.
- (2) The Contractor shall be responsible for all subcontractors compliance with these insurance requirements.

7. Transportation: All shipments of hazardous materials under this Contract shall be handled in accordance with current U.S. Department of Transportation regulations and other applicable federal, state, and local laws and regulations.

8. Safety: The Contractor agrees it is familiar with the risks of injury associated with the work, has reviewed the work to be performed, inspected the job site with an IPSC representative, and has determined that no unusual or peculiar risk of harm exists with regard to the work to be performed at the job site.

The Contractor further agrees it shall, at all times, provide at the job site a competent supervisor(s) familiar with IPSC's and the industry's safety standards to ensure compliance with all federal, state, and local regulations pertaining to safety, including, but not limited to, Federal and State OSHA, as said regulations relate to the work to be performed under the Contract. Although IPSC assumes no responsibility to oversee or supervise the work, IPSC reserves the right to review safety programs and practices and make recommendations to the Contractor. Any such review or recommendation by IPSC will not increase IPSC's liability or responsibility and shall not relieve the Contractor from providing a safe work environment and complying with legal requirements.

The Contractor shall comply with IPSC's safety and equipment requirements prior to starting work. Worker protective clothing, which includes, but is not limited to, hardhats, safety glasses, safety shoes, gloves, respirators, earplugs, safety harnesses, and face shields shall be provided by the Contractor.

Prior to starting work, all of the Contractor's personnel shall attend a safety orientation taught by a representative of IPSC. At the Contractor's option, a supervisor may attend

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

the orientation taught by IPSC, then present the orientation to the remainder of the Contractor's personnel. In this case, a roll shall be given to IPSC which lists each person who received the orientation and the date it was received.

9. Material Safety Data Sheets: The Contractor shall furnish a Material Safety Data Sheet (MSDS) for all hazardous materials furnished under this Contract. The MSDS shall be furnished to IPSC on, or prior to, the date of the first delivery of the materials or equipment.

If the specifications require that the Contractor furnish instruction books, the Material Safety Data Sheets shall also be included in such books.

10. Contract Termination: IPSC reserves the right, by giving written notice to the Contractor, to terminate the whole or any part of this Contract at IPSC's convenience, whether or not the Contractor is in default. In the event of termination, IPSC will pay the Contractor reasonable and proper termination costs; however, if the Contractor's Proposal includes cancellation charges, payment for termination costs shall not exceed the cancellation charges set forth therein.

Termination of the work shall not constitute the basis for a claim for damages or loss of anticipated profits and the Contractor hereby releases IPSC from any such claim.

The Contractor shall, after consultation with IPSC, take all reasonable steps to minimize the costs related to termination.

The Contractor shall provide IPSC with an accounting of costs claimed, including adequate supporting information and documentation and IPSC may, at its expense, audit the claimed costs and supporting information and documentation.

**PART F - DETAILED SPECIFICATION****DIVISION F2 - GENERAL DESIGN AND PACKING REQUIREMENTS**

1. **General:** This Section contains the detailed description and supplementary requirements for materials and services included under these Specifications.
2. **Scope:** The work under these Specifications shall include supply of variable clearance packing and reduced clearance spill strips for the intermediate-pressure turbine sections and upgrade of currently installed retractable packings on the N1 and N2 high-pressure end packings of the IGS and miscellaneous materials and services required for proper installation and operation.

The materials to be furnished shall include the following:

a. **Unit 2:**

- Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).
- Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).
- Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).
- Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).

b. **Unit 1:**

- Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).
- Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).
- Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).

## DETAILED SPECIFICATIONS

GENERAL DESIGN AND PACKING REQUIREMENTS

---

- Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).
  - c. Removal of Restrictions: Packing ring restrictions or teeth shall not be removed from any segment without IPSC review and approval.
  - d. Design Conditions: The turbine is a GE S2 design with a name plate rating of 820 MWG and a tested capability at design throttle conditions at 875 MWG. It is a single reheat, tandem-compound, 3600 rpm, condensing extraction-type turbine. Design reheat turbine inlet steam conditions are 550 psig and 1000°F.
3. IPSC Responsibilities: IPSC will be responsible for the disassembly, inspection, and reassembly of the high-pressure turbine and intermediate-pressure turbine.
- IPSC will provide a contractor to do abrasive blast cleaning and an NDE contractor to perform nondestructive examination of turbine components. IPSC will be responsible for cleaning components requiring hand cleaning.
- The intermediate-pressure rotor, diaphragms, packing boxes, and packing hardware will be removed, sand blasted, and NDE inspected.
- All components will be marked and located in an accessible location.
- All steam joint surfaces will be cleaned and stoned.
- In the event the rotor or any steam packing component is sent off plant site for repairs, the Contractor will be notified regarding the location of the repair facility and the return shipment schedule.
- a. Services: The following services will be provided by IPSC:
    - Overhead crane and operator to unload, setup tooling, and packing ring holders for measurement and installation of packing.
    - Nominal 480-volt alternating current electrical service.
    - Craft labor assistance as required.
    - IPSC will align diaphragms and packing boxes prior to installation of packing segments.
    - Sandblasting equipment and services.
    - NDE of components.
4. Contractor Responsibilities: The Contractor shall be responsible for the following:
- The Contractor shall provide a detailed estimate of savings.

## DETAILED SPECIFICATIONS

## GENERAL DESIGN AND PACKING REQUIREMENTS

- 
- The Contractor shall be responsible for the technical services associated with the packing installation including technical direction, engineering support, and all measurements during the scheduled overhaul.
  - The Contractor's personnel shall perform all machining required for installation of packing and spill strips including butt clearances, retaining pin slots, and final radial clearances.
  - The Contractor shall install packing rings and spill strips into the packing ring holders during reassembly of the intermediate-pressure turbine section.
  - The Contractor shall provide all tooling and machine tools necessary to ensure proper fit of the packing and spill strip segments.
  - The Contractor shall provide a final report of all work accomplished during the outage.
  - a. Opening Inspection: The Contractor shall perform the following tasks after the unit is open for inspection:
    - Measure rotor diameters at packing fit locations.
    - Measure critical hook fit dimensions on the steam packing holders to identify existing distortion.
    - Verify dimensions of steam packing and spill strips supplied under these Specifications for installation in the unit.
    - Re-engineer and upgrade currently installed retractable end packings in the high- pressure turbine N1 (grooves 4 - 7) and N2 (grooves 6 - 7).
    - All dimensions and findings of the open inspection shall be submitted to IPSC as requested and included in the final report.
5. Additional Information: The following Appendix information is included with these Specifications:
- IP Turbine Cross-Sectional Drawing.
  - IP Rotor Clearance Diagram - Generator End.
  - IP Rotor Clearance Diagram - Turbine End.
  - Unit 1 - Rotor Clearances from 1994 inspection.
  - Unit 2 - Rotor Clearances from 1995 inspection.

#### **11. Regulatory**

- List of required permits
- List of required licenses
- Applications for permits and licenses

**ACORD**

3-5-2002

PRODUCER  
MARSH USA INC.  
4 Whippany Road  
P.O. Box 1866  
Morristown, NJ 07962-1866

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

## COMPANIES AFFORDING COVERAGE

## COMPANY

A INSURANCE CORPORATION OF HANNOVER

## COMPANY

B TRAVELERS INDEMNITY CO. OF ILLINOIS

## COMPANY

C

## COMPANY

D

100129-TURB2-EXCLU-

INSURED  
TURBOCARE, INC.  
2140 WESTOVER ROAD  
CHICOPEE, MA 01022-1057

## COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY	ICH GL 132-01	11/01/01	10/01/02	GENERAL AGGREGATE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				PRODUCTS - COM/OP AGG \$ EXCLUDED
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				PERSONAL & ADJ INJURY \$ 1,000,000
	<input type="checkbox"/> OWNERS & CONTRACTORS PROT				EACH OCCURRENCE \$ 1,000,000
					FIRE DAMAGE (Any one fire) \$ 1,000,000
					MED EXP (Any one person) \$ 25,000
B	AUTOMOBILE LIABILITY	TC2J-CAP-229T228-3-TIL-01(AOS)	10/01/01	10/01/02	COMBINED SINGLE LIMIT \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO	TC2E-CAP-229T228-5-TCT-01(TX)	10/01/01	10/01/02	BODILY INJURY (Per person) \$ N/A
	<input checked="" type="checkbox"/> ALL OWNED AUTOS	TJ-EAP-229T230-2-TIL-01(MA-XS)	10/01/01	10/01/02	BODILY INJURY (Per accident) \$ N/A
	<input checked="" type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE \$ N/A
	<input checked="" type="checkbox"/> HIRED AUTOS				
	<input checked="" type="checkbox"/> NON-OWNED AUTOS				
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$
	<input type="checkbox"/> ANY AUTO				OTHER THAN AUTO ONLY: \$
					EACH ACCIDENT \$
					AGGREGATE \$
A	EXCESS LIABILITY	ICH CU 222-01	11/01/01	10/01/02	EACH OCCURRENCE \$ 2,000,000
	<input checked="" type="checkbox"/> UMBRELLA FORM				AGGREGATE \$ 2,000,000
	<input type="checkbox"/> OTHER THAN UMBRELLA FORM				\$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	TRJ-UB-229T228-A-01	10/01/01	10/01/02	<input checked="" type="checkbox"/> STATUTORY LIMITS \$
	(AZ, HI, OR, MT, NV, WY)				EACH ACCIDENT \$ 1,000,000
	THE PROPRIETOR/ PARTNER/EXECUTIVE OFFICERS ARE:	TC2J-UB-229T228-B-01 (AOS)	10/01/01	10/01/02	DISEASE - POLICY LIMIT \$ 1,000,000
	<input checked="" type="checkbox"/> INCL <input type="checkbox"/> EXCL				DISEASE - EACH EMPLOYEE \$ 1,000,000
	OTHER				

DESCRIPTION OF OPERATIONS/LOCATION/VEHICLE/SPECIAL ITEMS

LIMITS MAY HAVE BEEN REDUCED BY PAID CLAIMS AND MAY HAVE DEDUCTIBLES OR RETENTIONS.

Project No. 02-22354 / 15086

## CERTIFICATE HOLDER

Intermountain Power Service Corp  
850 Brush Wellman Road  
Delta, UT 84624-9546

NOTICE: ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE INSURANCE COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

INTERMOUNTAIN POWER SERVICE CORP  
Utah Certified

*James Compton*

ACORD 25 (3/98)

IP7\_005436

**PERSONNEL POLICY****CONDUCT AND DISCIPLINARY ACTION****1. SCOPE**

This procedure intends to serve as a guideline for behavior and conduct of all personnel at TurboCare. It covers expected code of conduct and prescribed disciplinary action in certain events.

**2. PRACTICE**

Following are some of the basic guidelines of conduct and standards of acceptable behavior. These are provided as examples of unacceptable conduct. These examples are not intended to be all-inclusive, but are provided to give employees a sense of what is expected of them. Disciplinary action will be imposed and discharge may result from violations of these rules and standards and other conduct which, at the discretion of the management is unacceptable. These are subject to changes as circumstances dictate. Changes will be posted on the bulletin board prior to their implementation whenever practical.

1. Excessive absenteeism.
2. Use or possession or being under the influence of non-prescribed substances or alcohol while on company premises, or otherwise engaged in company business.
3. Insubordination.
4. Failure to follow instructions given in either a verbal or written manner.
5. Falsification of company records including the employment application form.
6. Negligent or unauthorized use of company equipment.
7. Physical or verbal abuse of fellow employees or visitors.
8. Gambling during working hours.
9. Misappropriation of company or personal property.
10. Soliciting or seeking support or contributions during working time for any cause or organization.
11. Violation of safety rules and common safety practices.
12. Failure to make a prompt report of any accident on company property.
13. Inattention to the job.
14. Failure to observe department working hours, schedules, intended scheduled overtime.

CONTROLLED PRINTED COPIES HAVE RED LOGO

Z: REVISION ZZ ADDITION

Description:

**Conduct and Disciplinary Action**

Document No.:

HR-302.DOC

Rev. 0

Date:12/09/96

Page No.:

1 of 2

**PERSONNEL POLICY**

15. Unsatisfactory work performance.
16. Delaying or restricting production or inciting others to do so in an unlawful fashion.
17. Disclosure of confidential company information to unauthorized persons.
18. Possession of weapons.

A deviation from any of the established guidelines of behavior will result in disciplinary action as described below.

1st step	Counseling / Verbal Warning.
2nd step	Written Warning
3rd step	Suspension one day
4th step	Suspension three days
5th step	Discharge

Some of these steps may, at the discretion of management, be skipped.

Example: Major offenses, such as unauthorized use of company property, possession of controlled substances, the first offense could result in discharge and even prosecution if a commission of crime occurs.

DISTRIBUTION LIST:		SIGNATURE	DATE
Prepared by:	Corinne Bresnahan		
Approval:	Corinne Bresnahan Human Resources Mgr.		
	P. Douglas London Operations Manager		
CONTROLLED PRINTED COPIES HAVE RED LOGO			
Description:		Document No.:	Rev. 0 Date: 12/09/96
<b>Conduct and Disciplinary Action</b>		HR-302.DOC	Page No.: 2 of 2

## **12. Construction**


- Letter of intent - IPSC Maintenance
- Work scope
- Field report and photographs
- Safety tagging
- Contractor orientation
  - Site familiarization
  - Construction utilities
  - Site access and office space
- Safety consideration list

**MEMORANDUM**

INTERMOUNTAIN POWER SERVICE CORPORATION

TO: Norm Mincer

Page 1 of 1

FROM: Dennis K. Killian 

DATE: February 21, 2002

SUBJECT: Work Package Transmittal for IGS01-17  
*Variable Clearance Packings for IP Turbine Sections*

Attached is the detailed work package for Capital Project IGS01-17. This project will replace conventional interstage packings on both Unit's IP turbines with variable clearance packings and reduced clearance spill strips. All materials and labor will be provided by TurboCare under Purchase Order 02-22354. Please use sub-work orders of Work Order 00-7718-0 for any IPSC work on this project. Please refer to the Summary of Work Scope for requested Maintenance Department support.

Please add this project to the outage schedule and have Planning receive and stage the new packings and spill strips. Note that some packing rings have already been shipped. TurboCare needs some space on the turbine deck and electrical service for their machines during the outage.

Work on Unit 2 will start during the Spring 2002 outage as soon as the IP turbine upper diaphragms are removed and will last approximately four days. New packings for Unit 1 will begin to arrive in January 2003 for installation during the Spring 2003 outage.

There will be no drawings or document revisions for this project.

David Spence is the Project Engineer and Contract Administrator for this project. Please call him at ext. 6449 if you have questions regarding this project.

DCS/JKH:jmg  
Attachments

**IP7\_005440**

## **IGS01-17**

### **Variable Clearance Packing for IP Turbine Sections**

#### **Summary of Work Scope**

The contractor (Turbocare) will supply and install variable clearance interstage packings and reduced clearance spill strips on the 9<sup>th</sup> through 14<sup>th</sup> stages of the IP turbines on both units. The contractor will also upgrade the variable clearance end packings on the HP turbine N1 and N2 packings not covered under the Alstom upgrade and provide new fixed end packings for the IP turbine.

#### **Turbocare**

- Provide new variable clearance interstage packings (9<sup>th</sup> -14<sup>th</sup> stages)
- Provide new reduced clearance spill strips (9<sup>th</sup> - 14<sup>th</sup> stages)
- Provide new conventional end packings and springs (N3 & N4)
- Upgrade/refurbish variable clearance packings on HP turbine (N1 & N2 outer rings)
- Perform all diaphragm and packing ring fit measurements
- Field machine packing segments to fit and compensate for diaphragm distortion
- Remove old spill strips and install new reduced clearance spill strips (9<sup>th</sup> -14<sup>th</sup> stages)
- Fit and install new interstage packings
- Document initial and final fit measurements on new packings

#### **IPSC - Maintenance**

- Receive and stage parts shipped from Turbocare for Unit 2 spring 2002 outage
- Add IP retractable packing installation to the outage schedule/timeline. Job will begin when the IP upper diaphragms are removed and will last approximately four days.
- Provide a 10' x 10' space on the turbine deck close to the diaphragm repair area for the Turbocare CNC machine
- Provide nominal 480-volt AC electrical service to the Turbocare CNC machine
- Provide overhead crane and operators to unload and setup CNC machine and move diaphragms and end packing ring segments

#### **IPSC - Technical Services**

- Contract/project administration
- QA/QC on packing and spill strip installation
- Final clearance measurements and performance calculations

## INTERMOUNTAIN POWER SERVICE CORPORATION

Page 1 Of 1Date 02/14/02Rev. No. 1

## CONSTRUCTION QUALITY PLAN AND VERIFICATION REPORT

Project No. IGS01-17 Project Description Variable Clearance Packing for IP Turbine Sections  
 Project Designer David Spence Project Constructor TurboCare Inc. Q/A Coordinator David Spence

Item No.	Job Component	Responsible Inspector	References	Special Instructions	Verifier Initials & Date
1	Measure rotor diameters at packing fit locations.	D. Spence G. Christensen		Measurements at three locations.	
2	Measure and evaluate hook-fit dimensions on steam packing holders to identify distortion.	D. Spence G. Christensen		Evaluate to determine roundness of fits and need for additional machining to fit packing ring segments.	
3	Verify steam packing and spill strip dimensions with Contractor for proper fit.	D. Spence	Project detailed specs.	Verify packing ring segments and spill strips will fit properly	
4	Verify proper segment butt clearances after machining.	D. Spence	OEM specs.	OEM should provide field drawings and lists for verification.	
5	Measure and verify closing clearances.	D. Spence G. Christensen	QA/QC Man.	Measure radial clearances with packing in the closed position. Measure tooth heights at 8 locations per steam path audit requirements.	
6	Verify packing retaining pins are installed and staked in each fit.	D. Spence P. Do	QA/QC Man.	Inspection performed just prior to setting upper half diaphragms and packing boxes.	
7	Pre and post-outage IP enthalpy drop efficiency tests to verify performance guarantees.	D. Spence G. Christensen	Project detailed specs.	Use test results and steam path audit calculations to determine the effect of retractable interstage packings and reduced clearance spill strips.	

IP7\_005442

INTERMOUNTAIN POWER SERVICE CORPORATION

Safety Consideration List

Sheet 1 of 1

CP# IGS01-17 Project Title Variable Clearance Packing for IP Turbine Sections Date 2/14/02

Project Engineer David Spence Supervising Engineer (Initials) \_\_\_\_\_

Item #	Safety Consideration	Required Safety Measures
1	All personnel performing work shall follow the safe, approved work methods and procedures outlined in the IPSC Safety Code.	Work shall not be started until all necessary and appropriate safety precautions have been taken including a safety orientation meeting.
2	All personnel shall adhere to the Intermountain Generating Station Clearance Procedure to work on equipment that is tagged out.	Project Engineer shall sign on to the turbine-generator clearance and maintain a group tagout sheet. Contractors shall sign on to the group tagout sheet while performing work.
3	Each person shall know the characteristics of the materials used for the work including the requirements for safe use and handling of identified hazardous materials.	Review MSDS for each hazardous material used and take all necessary safety and environmental precautions.

Reviewed by IPSC Safety Dept. \_\_\_\_\_ Accepted by Construction Supv. \_\_\_\_\_

IP7\_005443



**INTERMOUNTAIN POWER SERVICE CORP.**

Delta, Utah 84624-9546 (435) 864-4414 - Purchasing FAX (435) 864-6678

**VENDOR: TURBOCARE**

2140 WESTOVER ROAD  
CHICOPEE, MA 01022-1057

# PURCHASE ORDER

04 JAN 2002

VENDOR MUST SHOW P.O. NUMBER ON ALL INVOICES, BILL OF MATERIALS, CORRESPONDENCE, AND ON PACKING LISTS IN EACH CONTAINER, TO INSURE PROMPT PAYMENT. CHARGES FOR TRANSPORTATION MUST BE SUPPORTED BY COPY OF FREIGHT BILL.

PURCHASE ORDER NO.  
02-22354

VENDOR CODE  
3001

REQUISITION NO  
173417

\* \* \* S H I P T O \* \* \*

INTERMOUNTAIN POWER SERVICE CORPORATION  
850 W. BRUSH WELLMAN RD.  
DELTA, UT 84624-9546

800-346-5462 OR 413-593-0500

CONFIRMING DO NOT DUPLICATE	NON CONFIRMING X	SHIP VIA BEST WAY	TERMS NET 30	FOB POINT DESTINATION F/A	1 PAGE OF 2	MAIL
--------------------------------	---------------------	----------------------	-----------------	------------------------------	----------------	------

INTERMOUNTAIN POWER SERVICE CORPORATION'S STANDARD TERMS AND CONDITIONS ARE INCLUDED AS PART OF THIS AGREEMENT

QUANTITY ORDERED	UNIT	IPSC PART NO.	DESCRIPTION	ACCOUNT NUMBER	UNIT PRICE	EXTENSION
1	SV		LINE 1 PROVIDE ALL MATERIALS, SUPERVISION, LABOR, TOOLS, AND EQUIPMENT FOR VARIABLE CLEARANCE DIAPHRAGM AND REDUCED CLEARANCE SPILL STRIP INSTALLATION IN THE INTERMEDIATE PRESSURE TURBINE SECTION ON UNIT 2 DURING THE SPRING 2002 OUTAGE	00-2TGX-402 00-07718-0	179,340.00	179,340.00
1	SV		LINE 2 PROVIDE ALL MATERIALS, SUPERVISION, LABOR, TOOLS, AND EQUIPMENT FOR VARIABLE CLEARANCE DIAPHRAGM AND REDUCED CLEARANCE SPILL STRIP INSTALLATION IN THE INTERMEDIATE PRESSURE TURBINE SECTION ON UNIT 1 DURING THE SPRING 2003 OUTAGE	00-1TGX-402 00-07718-0	179,340.00	179,340.00
ATTENTION: BOB HOGAN/KRISTEN SCHROEDER  RCN/CLE						

1. Invoices and correspondence may be mailed to Intermountain Power Service Corporation, 850 West Brush Wellman Rd., Delta, Utah, 84624-9546.

2. Acknowledgement is required if shipment will not be made within Five days.

3. Mark packages or items with IPSC part number and/or P.O. Line number. Show number on invoice and packing slip.

4. Vendor must furnish applicable material safety data sheets.

UTAH VENDORS ARE TO ADD TO THE INVOICE  
ALL APPLICABLE STATE, AND COUNTY TAXES.

OUT OF STATE VENDORS, LICENSED TO  
COLLECT UTAH TAXES. ARE TO ADD TAX OF 6%.

UTAH TAXES WILL BE ACCRUED BY IPSC FOR  
OUT OF STATE VENDORS NOT LICENSED TO

BUYER

IP7\_005444



# PURCHASE ORDER

04 JAN 2002

VENDOR MUST SHOW P.O. NUMBER ON ALL INVOICES, BILL OF LADING, CORRESPONDENCE, AND ON PACKING LISTS IN EACH CONTAINER, TO INSURE PROMPT PAYMENT. CHARGES FOR TRANSPORTATION MUST BE SUPPORTED BY COPY OF FREIGHT BILL.

PURCHASE ORDER NO. 02-22354	VENDOR CODE 3001	REQUISITION NO 173417
--------------------------------	---------------------	--------------------------

\*\*\* SHIP TO \*\*\*  
INTERMOUNTAIN POWER SERVICE CORPORATION  
850 W. BRUSH WELLMAN RD.  
DELTA , UT 84624-9546

800-346-5462 OR 413-593-0500

CONFIRMING DO NOT DUPLICATE	NON CONFIRMING X	SHIP VIA BEST WAY	TERMS NET 30	FOB POINT DESTINATION F/A	2 PAGE OF 2	MAIL
-----------------------------	------------------	----------------------	-----------------	------------------------------	----------------	------

INTERMOUNTAIN POWER SERVICE CORPORATION'S STANDARD TERMS AND CONDITIONS ARE INCLUDED AS PART OF THIS AGREEMENT

QUANTITY ORDERED	UNIT	IPSC PART NO.	DESCRIPTION	ACCOUNT NUMBER	UNIT PRICE	EXTENSION
			<p>**NOTE: TOTAL COST INCLUDES OPTION III, PARAGRAPH 1 OF VENDOR'S QUOTE, FOR AN ADDITIONAL \$9,600 PER UNIT FOR UPGRADED SPE COATED SPILL STRIPS FOR STAGES 9 THROUGH 14**</p> <p>**NOTE: THE ATTACHED REVISED ADDITIONAL GENERAL CONDITIONS, PART E, DIVISION E2, OF SPECIFICATIONS 45556 ARE MADE A PART OF THIS PURCHASE ORDER BY REFERENCE HEREIN**</p> <p>***SERVICE CONTRACT TERMS AND CONDITIONS (TC-100'S) ARE INCORPORATED IN THIS PURCHASE ORDER BY REFERENCE***</p> <p>*****ATTENTION IPSC WAREHOUSE***** THIS ORDER IS FOR A SERVICE AND NO MATERIAL WILL BE RECEIVED</p> <p>DATE REQUIRED 02/21/02</p>			
TOTAL COST						358,680.00

1. Invoices and correspondence may be mailed to Intermountain Power Service Corporation, 850 West Brush Wellman Rd., Delta, Utah, 84624-9546.
2. Acknowledgement is required if shipment will not be made within Five days.
3. Mark packages or items with IPSC part number and/or P.O. Line number. Show number on invoice and packing slip.
4. Vendor must furnish applicable material safety data sheets.

UTAH VENDORS ARE TO ADD TO THE INVOICE ALL APPLICABLE STATE, AND COUNTY TAXES.

OUT OF STATE VENDORS, LICENSED TO COLLECT UTAH TAXES, ARE TO ADD TAX OF 6%.

UTAH TAXES WILL BE ACCRUED BY IPSC FOR OUT OF STATE VENDORS NOT LICENSED TO

RALPH NEWBERRY 435-864-4414

BUYER

REVIEWED BY S. CHAPMAN

IP7\_005445

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**Unit 2 Intermediate-Pressure Turbine Shaft Packing**

**1. Materials**

			<b>Bid</b>		
<b>LOCATION</b>	<b>OEM PART #</b>	<b>DESIGN CLEARANCE</b>	<b>TYPE</b>	<b>RADIAL CLEARANCE</b>	<b>CONTRACT PRICE</b>
N3 G3	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N3 G4	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N3 G5	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N3 G6	U841B275L1434	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G1	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G2	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G3	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
N4 G4	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.</u>
Stage 9 TE	U831B275D1046	.015"	Variable	.015	\$ 5,800.
Stage 9 GE	U831B275D0668	.015"	Variable	.015	\$ 5,800.
Stage 10 TE	U831B275B0846	.015"	Variable	.015	\$ 5,800.
Stage 10 GE	U831B275B0568	.015"	Variable	.015	\$ 5,800.
Stage 11 TE	U831B275B0646	.015"	Variable	.015	\$ 5,800.
Stage 11 GE	U831B275B0468	.015"	Variable	.015	\$ 5,800.
Stage 12 TE	U831B275B0746	.015"	Variable	.015	\$ 5,800.
Stage 12 GE	U831B275B0568	.015"	Variable	.015	\$ 5,800.
Stage 13 TE	U841B275L0646	.015"	Variable	.015	\$ 5,800.
Stage 13 GE	U841B275L0468	.015"	Variable	.015	\$ 5,800.
Stage 14 TE	U841B275L0646	.015"	Variable	.015	\$ 5,800.
Stage 14 GE	U841B275L0468	.015"	Variable	.015	\$ 5,800.

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine shaft packing installation.

\$25,700.

**UNIT 2 IP SHAFT PACKING SUBTOTAL (Materials and Labor)**

\$108,100.

**Note:** Installation of packing rings requires holders to be round within .050 TIR. Distortion greater than this may require additional machining which would be billed on a time and material basis per the attached Field Service Rates (QCM-58)

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**B. Unit 2 Intermediate-Pressure Turbine Spill Strips**

**1. Materials**

LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	Bid	
				RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 11 TE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 11 GE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 12 TE	U699C071S0565	0.060"	Straight	.045	\$ 1,170.00
Stage 12 GE	U699C071B0565	0.060"	Straight	.045	\$ 1,170.00
Stage 13 TE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 13 GE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 14 TE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00
Stage 14 GE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation.

\$ 4,000.00

UNIT 2 IP SPILL STRIP SUBTOTAL (Materials and Labor)

\$22,540.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING 7 SPILL STRIPS**

**C. Unit 2 High-Pressure Turbine Shaft End Packing Upgrade**

**1. Materials**

			Bid		
LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	RADIAL CLEARANCE	CONTRACT PRICE
N1 G4	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1 G5	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1 G6	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1 G7	U841B262L0768	.015"	Variable	.015	\$ 5,800.00
N2 G6	U831B305D1234	.015"	Variable	.015	\$ 5,800.00
N2 G7	U831B305D1234	.015"	Variable	.015	\$ 5,800.00

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade.

\$ 4,300.00

UNIT 2 HP SHAFT END PACKING SUBTOTAL (Materials and Labor)

\$39,100.00

**UNIT 2 TOTAL UNIT PACKING AND SPILL STRIPS  
(Material and Labor)**

\$169,740.00

OPTION III 9,600.00  
\$179,340.00



\$ 108,100 IS  
\$ 102,000 Brush seals  
\$ 210,100 w Brush seals

Spill strips  
\$ 22,540 standard  
\$ 9,600 SPB coated  
\$ 32,140

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**J. Unit 1 Intermediate-Pressure Turbine Shaft Packing**

**1. Materials**

			Bid			
LOCATION		OEM PART #	DESIGN CLEARANCE	TYPE	RADIAL CLEARANCE	CONTRACT PRICE
N3	G3	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N3	G4	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N3	G5	U841B275L1234	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N3	G6	U841B275L1434	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4	G1	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4	G2	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4	G3	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
N4	G4	U841B275L0668	.015"	<u>Conventional</u>	<u>.015</u>	<u>\$ 1,600.00</u>
Stage 9 TE		U831B275D1046	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 9 GE		U831B275D0668	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 10 TE		U831B275B0846	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 10 GE		U831B275B0568	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 11 TE		U831B275B0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 11 GE		U831B275B0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 12 TE		U831B275B0746	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 12 GE		U831B275B0568	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 13 TE		U841B275L0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 13 GE		U841B275L0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 14 TE		U841B275L0646	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>
Stage 14 GE		U841B275L0468	.015"	Variable	<u>.015</u>	<u>\$ 5,800.00</u>

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine shaft packing installation.

\$25,700.00

UNIT 1 IP SHAFT PACKING SUBTOTAL (Materials and Labor)

\$108,100.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**Unit 1 Intermediate-Pressure Turbine Spill Strips**

**1. Materials**

			Bid		
LOCATION	OEM PART #	DESIGN CLEARANCE	TYPE	RADIAL CLEARANCE	CONTRACT PRICE
Stage 9 TE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R1	U699C070S0510	0.050"	Straight	.035	\$ 1,080.00
Stage 9 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 TE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R1	U699C072S0530	0.050"	Straight	.035	\$ 1,080.00
Stage 10 GE R2	"	0.050"	Straight	.035	\$ 1,080.00
Stage 11 TE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 11 GE	U699C069S0550	0.050"	Straight	.035	\$ 1,170.00
Stage 12 TE	U699C071S0565	0.060"	Straight	.045	\$ 1,170.00
Stage 12 GE	U699C071B0565	0.060"	Straight	.045	\$ 1,170.00
Stage 13 TE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 13 GE	U699C069B0590	0.060"	Straight	.045	\$ 1,260.00
Stage 14 TE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00
Stage 14 GE	U699C068B0625	0.060"	Straight	.045	\$ 1,350.00

2. Supervision, labor, tools, and equipment to perform all intermediate pressure turbine spill strip installation.

\$ 4,000.00

UNIT 1 IP SPILL STRIP SUBTOTAL (Materials and Labor)

\$22,540.00

**PART C - DIVISION C2**

**BIDDING DOCUMENTS**

**VARIABLE CLEARANCE PACKING SPILL STRIPS**

**F. Unit 1 High-Pressure Turbine Shaft End Packing Upgrade**

**1. Materials**

			<b>Bid</b>		
<b>LOCATION</b>	<b>OEM PART #</b>	<b>DESIGN CLEARANCE</b>	<b>TYPE</b>	<b>RADIAL CLEARANCE</b>	<b>CONTRACT PRICE</b>
N1 G4	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1 G5	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1 G6	U841B262L0868	.015"	Variable	.015	\$ 5,800.00
N1 G7	U841B262L0768	.015"	Variable	.015	\$ 5,800.00
N2 G6	U831B305D1234	.015"	Variable	.015	\$ 5,800.00
N2 G7	U831B305D1234	.015"	Variable	.015	\$ 5,800.00

2. Supervision, labor, tools, and equipment to perform all high pressure turbine shaft end packing upgrade.

\$ 4,300.00

**UNIT 1 HP SHAFT END PACKING SUBTOTAL (Materials and Labor)**

\$39,100.00

**UNIT 1 TOTAL UNIT PACKING AND SPILL STRIPS  
(Material and Labor)**

\$169,740.00

*option II 9,600.00*  
179,340.00

**PART E - DIVISION E2****ADDITIONAL GENERAL CONDITIONS**

1. **Performance:** Work completed during the outage on the high-pressure turbine section shall be guaranteed to produce an improvement in section efficiency equal to eighty (80) percent of recovered losses. The recovered losses shall be based on the calculated difference in steam path efficiency, as agreed upon by the Contractor and IPSC, between an opening and closing steam path audit.

IPSC will complete pre-outage performance tests to determine the performance level of the high-pressure turbine section. After the high-pressure section is opened, an opening steam path audit will be conducted by IPSC. The performance loss due to steam path deterioration will be determined by calculation. The types of deterioration that will be considered are, but not limited to, solid particle erosion, deposits, increased clearances, foreign object damage, and component surface roughness. Actual steam path repairs will be determined by IPSC following evaluation of the opening steam path audit.

Prior to closing the high-pressure section, a closing steam path audit will be conducted by IPSC to determine the recovered losses attributable to outage maintenance activities. The recovered losses will be calculated and agreed upon by the Contractor and IPSC.

2. **Performance Tests:** IPSC will conduct pre and post-outage performance tests with the intention of determining compliance with the performance guarantees. The tests will be conducted using plant instrumentation calibrated by IPSC, and by using design calculations agreed upon by the Contractor and IPSC where measurements are impractical. The tests will be conducted at valve wide open and corrected to design throttle conditions.

The general methods outlined in the ASME test code will be used as a guide for test procedures; however, code technicalities shall not void the validity of these tests. The Contractor shall have the right to witness the tests.

In addition to the above test procedures, IPSC may utilize a third party contractor to conduct ASME Performance Test Code tests (ASME PTC-6S) for the pre and post-outage testing. IPSC further reserves the right to use a third party contractor to conduct the opening and closing steam path audits. The results of the performance tests and steam path audits shall then be binding on the parties of this Contract.

All reasonable effort will be made to conduct the pre-outage performance tests within four (4) weeks before the start of the outage and the post-outage test within four (4) weeks of the initial startup following the outage.

3. **Guarantee:** The Contractor shall guarantee that the high-pressure turbine section shall meet the performance conditions as set forth in these Specifications.

If the field tests indicate that such performance conditions are not met, then IPSC shall be entitled to damages, excluding consequential damages, for such deficient performance. The damages for failing to meet the performance conditions as set forth in these Specifications shall be ten (10) percent of the Contract amount. It is agreed between the Contractor and IPSC that it would be impossible or extremely difficult to

## DIVISION E2

## ADDITIONAL GENERAL CONDITIONS

determine actual damages for failing to meet the guaranteed performance and that the above agreed amounts are reasonable liquidated damages and do not constitute a penalty.

The Contractor shall repair or replace, f.o.b. contract delivery point, all defective materials and workmanship.

4. Payment: Payment will be made within thirty (30) calendar days after completion of outage and performance tests, and receipt of the invoice.
5. Regulations, Permits, Licenses, and Warrants: The Contractor shall comply with all applicable federal, state, and local regulations including, but not limited to, Federal and State Occupational Safety Health Administration (OSHA), as said regulations relate to this Contract. In addition, the Contractor shall ensure that all permits, licenses, and warrants relating to the Contract be acquired.
6. Invoices: Invoices shall be submitted in duplicate to Accounts Payable, Intermountain Power Service Corporation, 850 West Brush Wellman Road, Delta, UT 84624-9546.

Each invoice shall show the Contract number. In all cases, the amount of the applicable sales tax or use tax shall be separately stated on the invoice.

7. Letters to IPSC: All inquiries relating to these Specifications prior to award of the Contract shall be addressed to the Buyer.

After award of Contract, all letters pertaining to performance of the Contract shall be addressed as follows:

S. Gale Chapman  
President and Chief Operations Officer  
Intermountain Power Service Corporation  
850 West Brush Wellman Road  
Delta, UT 84624-9546

Attention: Contract Administrator

Regarding Contract No. **02-45556**

**PART F - DIVISION F1****DETAILED SPECIFICATIONS - SPECIAL CONDITIONS**

1. **General:** Under the terms of the Contract, the Contractor shall furnish and deliver all materials, labor, tools, and equipment required for installation of variable clearance diaphragms, packing, and reduced clearance spill strips in the intermediate-pressure turbine sections during the spring outages for 2002 and 2003.

2. **Schedule:** Coordination and scheduling of work will be essential for efficient use of equipment and manpower due to the tight overhaul schedule.

The projected work schedule will be released to the Contractor within two (2) weeks of the award of the Contract so that IPSC's and the Contractor's work can be coordinated. IPSC may change the schedule to meet outage requirements.

The Contractor shall schedule delivery of equipment and materials in accordance with the following listed dates:

- a. **Unit 2:** The outage will commence on March 2, 2002, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 4, 2002. Outage work shall be completed and the unit put on turning gear no later than March 29, 2002. The unit will be released for normal operation on April 1, 2002.
  - b. **Unit 1:** The outage will commence on March 1, 2003, when the unit is taken off-line. The turbine will be taken off turning gear on the morning of March 3, 2003. Outage work shall be completed and the unit put on turning gear no later than March 28, 2003. The unit will be released for normal operation on March 31, 2003.
3. **Printed Documents:** All printed documents including drawings and instruction books, if applicable, shall be in the English language. All units of measurement shall be in the English foot-pound-second system.
  4. **Option to Renew:** IPSC will have the right and option at any time during the original Contractual Period to renew the Contract for a period of one (1) year after date of expiration of the original Contractual Period at the same prices and terms and conditions for such extended or option period.

In the event that said option is exercised by IPSC, it will be exercised by the issuance and delivery to the Contractor of an order therefor by the Buyer or a duly authorized representative. The Contract executed for the original Contractual Period shall remain in effect for any such extended or option period.

5. **Indemnity Clause:** The Contractor undertakes and agrees to indemnify, hold harmless, and at the option of the Intermountain Power Agency, defend Intermountain Power Agency, Intermountain Power Service Corporation, Los Angeles Department of Water and Power, and any and all of their boards, officers, agents, representatives, employees, assigns and successors in interest from and against any and all suits and causes of action, claims, charges, costs, damages, demands, expenses (including, but

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

not limited to, reasonable attorneys' fees and cost of litigation), judgments, civil fines and penalties, liabilities or losses of any kind or nature, including, but not limited to, violations of regulatory law, death, bodily injury or personal injury to any person, including the Contractor's employees and agents, or damage or destruction to any property of either party hereto, or third persons in any manner arising by reason of or incident to the performance of this Contract on the part of the Contractor, or the Contractor's officers, agents, employees, or subcontractors of any tier, except for the sole negligence of IPA, IPSC, LADWP, or their boards, officers, agents, representatives, or employees.

6. Insurance Requirements: Prior to the start of work, but not later than thirty (30) days after date of the award of Contract, the Contractor shall furnish IPSC evidence of coverage from insurers acceptable to IPSC and in a form acceptable to the Insurance Analyst for IPSC. Such insurance shall be maintained by the Contractor and at the Contractor's sole cost and expense.

Such insurance shall not limit or qualify the liabilities and obligations of the Contractor assumed under the Contract. IPA, IPSC, or LADWP will not, by reason of its inclusion under these policies, incur liability to the insurance carrier for payment of premium for these policies.

Any insurance carried by IPA, IPSC, or LADWP which may be applicable will be deemed to be excess insurance and the Contractor's insurance is primary for all purposes despite any conflicting provision in the Contractor's policies to the contrary.

Should any portion of the required insurance be on a "Claims Made" policy, the Contractor shall, at the policy expiration date following completion of the work, provide evidence that the "Claims Made" policy has been renewed or replaced with the same limits and terms and conditions of the expiring policy, or that an extended discovery period has been purchased on the expiring policy at least for the Contract under which the work was performed.

Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a breach of Contract, upon which the Contract may be terminated or suspended.

- a. Workers' Compensation/Employer's Liability:

Workers' Compensation Insurance covering all of the Contractor's employees in accordance with the laws of any state in which the work is to be performed and including Employer's Liability Insurance, and as appropriate, Broad Form All States Endorsement, Voluntary Compensation, Longshoremen's and Harbor Workers' Compensation, Jones Act, and Outer-Continental Shelf coverages. The limit for Employer's Liability coverage shall be not less than \$1 million each accident and shall be a separate policy if not included with Workers' Compensation coverage. Evidence of such insurance shall be an endorsement to the policy providing for a thirty (30) day prior written notice of cancellation or nonrenewal of a continuous policy to IPSC, by receipted delivery, and a Waiver of Subrogation in favor of IPSC, IPA, and LADWP, its officers, agents, and

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

employees. Workers' Compensation/Employer's Liability exposure may be self-insured provided that IPSC is furnished with a copy of the certificate issued by the state authorizing the Contractor to self-insure. The Contractor shall notify IPSC, by receipted delivery, as soon as possible of the state withdrawing authority to self-insure.

b. Commercial General Liability:

Commercial General Liability with Blanket Contractual Liability, Products and Completed Operations, Broad Form Property Damage, Premises and Operations, Independent Contractors, and Personal Injury coverages included. Such insurance shall provide coverage for total limits actually arranged by the Contractor, but not less than \$2 million Combined Single Limit and be specific for this Contract. Should the policy have an aggregate limit, such aggregate limits should not be less than \$4 million. Umbrella or Excess Liability coverages may be used to supplement primary coverages to meet the required limits. Evidence of such coverages shall be on IPSC's Additional Insured Endorsement Form or on an endorsement to the policy acceptable to IPSC and provide for the following:

- (1) To include IPA, IPSC, LADWP, and their officers, agents, and employees as additional insured with the Named Insured for the activities and operations under the Contract.
- (2) That the insurance is primary and not contributing with any other insurance maintained by IPSC.
- (3) A Severability-of-Interest of Cross-Liability Clause such as: "The policy to which this endorsement is attached shall apply separately to each insured against whom a claim is made or suit is brought, except with respect to the limits of the company's liability."
- (4) That the policy shall not be subject to cancellation, change in coverage, reduction of limits or nonrenewal of a continuous policy, except after written notice to IPSC, by receipted delivery, not less than thirty (30) days prior to the effective date thereof.
- (5) A description of the coverages included under the policy.

c. Commercial Automobile Liability:

Commercial Automobile Liability covering the use of owned, nonowned, hired, and leased vehicles for total limits actually arranged by the Contractor, but not less than \$1 million Combined Single Limit. Such insurance shall include Contractual Liability coverage. The method of providing evidence of insurance and requirements for additional insureds, primary insurance, notice of cancellation, and Severability-of-Interest shall be the same as required in the Commercial General Liability Section of these terms and conditions.

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

d. Professional Liability:

The Contractor shall provide Professional Liability Insurance with Contractual Liability coverage included, covering the Contractor's liability arising from errors and omissions made directly or indirectly during the execution of this Agreement and shall provide coverage of \$5 million, Combined Single Limit. Evidence of such insurance shall be in the form of a special endorsement of insurance and shall provide a Waiver of Subrogation against IPA, IPSC, and LADWP, their officers, agents, and employees.

e. Other Conditions:

- (1) Failure to maintain and provide acceptable evidence of the required insurance for the required period of coverage shall constitute a major breach of Contract, upon which IPSC may immediately terminate or suspend the Agreement, or at its option, procure such insurance and submit a claim against Contractor's Performance Bond, deduct the cost thereof, including an administrative charge of two (2) percent, from any monies due the Contractor, or shall be immediately reimbursed by the Contractor for such costs upon demand.
- (2) The Contractor shall be responsible for all subcontractors compliance with these insurance requirements.

7. Transportation: All shipments of hazardous materials under this Contract shall be handled in accordance with current U.S. Department of Transportation regulations and other applicable federal, state, and local laws and regulations.

8. Safety: The Contractor agrees it is familiar with the risks of injury associated with the work, has reviewed the work to be performed, inspected the job site with an IPSC representative, and has determined that no unusual or peculiar risk of harm exists with regard to the work to be performed at the job site.

The Contractor further agrees it shall, at all times, provide at the job site a competent supervisor(s) familiar with IPSC's and the industry's safety standards to ensure compliance with all federal, state, and local regulations pertaining to safety, including, but not limited to, Federal and State OSHA, as said regulations relate to the work to be performed under the Contract. Although IPSC assumes no responsibility to oversee or supervise the work, IPSC reserves the right to review safety programs and practices and make recommendations to the Contractor. Any such review or recommendation by IPSC will not increase IPSC's liability or responsibility and shall not relieve the Contractor from providing a safe work environment and complying with legal requirements.

The Contractor shall comply with IPSC's safety and equipment requirements prior to starting work. Worker protective clothing, which includes, but is not limited to, hardhats, safety glasses, safety shoes, gloves, respirators, earplugs, safety harnesses, and face shields shall be provided by the Contractor.

## DETAILED SPECIFICATIONS

## SPECIAL CONDITIONS

Prior to starting work, all of the Contractor's personnel shall attend a safety orientation taught by a representative of IPSC. At the Contractor's option, a supervisor may attend the orientation taught by IPSC, then present the orientation to the remainder of the Contractor's personnel. In this case, a roll shall be given to IPSC which lists each person who received the orientation and the date it was received.

9. Material Safety Data Sheets: The Contractor shall furnish a Material Safety Data Sheet (MSDS) for all hazardous materials furnished under this Contract. The MSDS shall be furnished to IPSC on, or prior to, the date of the first delivery of the materials or equipment.

If the specifications require that the Contractor furnish instruction books, the Material Safety Data Sheets shall also be included in such books.

10. Contract Termination: IPSC reserves the right, by giving written notice to the Contractor, to terminate the whole or any part of this Contract at IPSC's convenience, whether or not the Contractor is in default. In the event of termination, IPSC will pay the Contractor reasonable and proper termination costs; however, if the Contractor's Proposal includes cancellation charges, payment for termination costs shall not exceed the cancellation charges set forth therein.

Termination of the work shall not constitute the basis for a claim for damages or loss of anticipated profits and the Contractor hereby releases IPSC from any such claim.

The Contractor shall, after consultation with IPSC, take all reasonable steps to minimize the costs related to termination.

The Contractor shall provide IPSC with an accounting of costs claimed, including adequate supporting information and documentation and IPSC may, at its expense, audit the claimed costs and supporting information and documentation.

**PART F - DETAILED SPECIFICATION****DIVISION F2 - GENERAL DESIGN AND PACKING REQUIREMENTS**

1. General: This Section contains the detailed description and supplementary requirements for materials and services included under these Specifications.
2. Scope: The work under these Specifications shall include supply of variable clearance packing and reduced clearance spill strips for the intermediate-pressure turbine sections and upgrade of currently installed retractable packings on the N1 and N2 high-pressure end packings of the IGS and miscellaneous materials and services required for proper installation and operation.

The materials to be furnished shall include the following:

a. Unit 2:

- Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).
- Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).
- Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).
- Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).

b. Unit 1:

- Supply twelve (12) rows of variable clearance packing for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) rows of variable clearance packing for N3 packing box grooves one (1) through four (4).
- Supply four (4) rows of variable clearance packing for N4 packing box grooves one (1) through four (4).
- Supply reduced clearance spill strips for diaphragm stages nine (9) through fourteen (14).
- Supply four (4) sets of upgraded design springs for N1 packing box grooves four (4) through seven (7).

## DETAILED SPECIFICATIONS

GENERAL DESIGN AND PACKING REQUIREMENTS

---

- Supply two (2) sets of upgraded design springs for N2 packing box grooves six (6) and seven (7).
  - c. Removal of Restrictions: Packing ring restrictions or teeth shall not be removed from any segment without IPSC review and approval.
  - d. Design Conditions: The turbine is a GE S2 design with a name plate rating of 820 MWG and a tested capability at design throttle conditions at 875 MWG. It is a single reheat, tandem-compound, 3600 rpm, condensing extraction-type turbine. Design reheat turbine inlet steam conditions are 550 psig and 1000°F.
3. IPSC Responsibilities: IPSC will be responsible for the disassembly, inspection, and reassembly of the high-pressure turbine and intermediate-pressure turbine.

IPSC will provide a contractor to do abrasive blast cleaning and an NDE contractor to perform nondestructive examination of turbine components. IPSC will be responsible for cleaning components requiring hand cleaning.

The intermediate-pressure rotor, diaphragms, packing boxes, and packing hardware will be removed, sand blasted, and NDE inspected.

All components will be marked and located in an accessible location.

All steam joint surfaces will be cleaned and stoned.

In the event the rotor or any steam packing component is sent off plant site for repairs, the Contractor will be notified regarding the location of the repair facility and the return shipment schedule.

- a. Services: The following services will be provided by IPSC:
- Overhead crane and operator to unload, setup tooling, and packing ring holders for measurement and installation of packing.
  - Nominal 480-volt alternating current electrical service.
  - Craft labor assistance as required.
  - IPSC will align diaphragms and packing boxes prior to installation of packing segments.
  - Sandblasting equipment and services.
  - NDE of components.
4. Contractor Responsibilities: The Contractor shall be responsible for the following:
- The Contractor shall provide a detailed estimate of heat rate and power savings for each stage of the intermediate-pressure turbine. These estimates shall be required for the bid evaluation based on previous outage measurements and for

## DETAILED SPECIFICATIONS

GENERAL DESIGN AND PACKING REQUIREMENTS

---

the predicted section efficiency improvement based on the current opening measurements.

- The Contractor shall be responsible for the technical services associated with the packing installation including technical direction, engineering support, and all measurements during the scheduled overhaul.
- The Contractor's personnel shall perform all machining required for installation of packing and spill strips including butt clearances, retaining pin slots, and final radial clearances.
- The Contractor shall install packing rings and spill strips into the packing ring holders during reassembly of the intermediate-pressure turbine section.
- The Contractor shall provide all tooling and machine tools necessary to ensure proper fit of the packing and spill strip segments.
- The Contractor shall provide a final report of all work accomplished during the outage.
- a. Opening Inspection: The Contractor shall perform the following tasks after the unit is open for inspection:
  - Measure rotor diameters at packing fit locations.
  - Measure critical hook fit dimensions on the steam packing holders to identify existing distortion.
  - Verify dimensions of steam packing and spill strips supplied under these *Specifications for installation in the unit*.
  - Re-engineer and upgrade currently installed retractable end packings in the high- pressure turbine N1 (grooves 4 - 7) and N2 (grooves 6 - 7).
  - All dimensions and findings of the open inspection shall be submitted to IPSC as requested and included in the final report.

5. Additional Information: The following Appendix information is included with these Specifications:

- IP Turbine Cross-Sectional Drawing.
- IP Rotor Clearance Diagram - Generator End.
- IP Rotor Clearance Diagram - Turbine End.
- Unit 1 - Rotor Clearances from 1994 inspection.
- Unit 2 - Rotor Clearances from 1995 inspection.

**14. Legal / Proprietary**

- Litigation or possible litigation
- Proprietary inventions, publications and processes
- Anything protected by patent, copyright or contractual agreement

### **13. Start-up**

- Start-up plan